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Therapeutic Gazette.

Whole Series, Vol. XII. | DETROIT, MICH., PHILADELPHIA, PA., | July 16, 1888. | Third Series, Vol. IV. No. 7.

CONTENTS.

Original Communications.

PAGE

Hygienic Therapeutics. A Lecture on Climatotherapy. By Professor Dujardin-Beaumetz 433
Notes on the Internal Use of Menthol and of Saffrol in the Treatment of Headaches, Neuralgias, and other Painful Affections. By C. L. Dana, M.D..... 441
Fluo-Silicate of Sodium. By Conrad Berens, M.D..... 443
On the Effervescent Form for the Administration of Certain Remedies. By Frank Woodbury, M.D..... 445
An Epidemic of Measles. By V. M. Reichard, M.D..... 448
An Experience in Hasheesh-Smoking. By A. M. Fielde..... 449

Leading Articles.

Nerium Odorum, or Oleander..... 452
Sulphonal, the New Hypnotic..... 454
The Anæsthetic Value of Erythrophlæine..... 455
The Administration of Salol to Children. 456
Antipyrin in the Treatment of Rheumatic Chorea..... 457
The Use of Cold in Diarrhœas of Children during the Hot Weather..... 458
The Treatment of Migraine..... 458

Reports on Therapeutic Progress.

Carbonic Acid in the Treatment of Dyspnœa..... 451
Subcutaneous Injections of Quinine..... 451
The Use of Drugs by Nurses, and their Influence on the Infant, conveyed by the Milk..... 459
The Treatment of Keratitis in Children..... 460
The Treatment of Intestinal Obstruction..... 462
Treatment of Spinal Abscesses..... 464
Pyridine..... 466
Saccharin in Beer..... 467
Canadol as a Local Anæsthetic..... 468
Ustilago Maidis in Obstetrics..... 468
Cascara Sagrada in Rheumatism..... 469
Nerve-Transplantation..... 469
Oxalate of Cerium as a Remedy for Cough..... 470
Myxœdema..... 471
A Case of Rupture of the Urinary Bladder in which the Rent was Sutured.... 472
Intrapleural Injections of Sterilized Air in the Treatment of Pneumothorax.... 473
The Treatment of Quinsy with Cocaine. 474
Antipyrin in Hemorrhage and Ulcers of the Leg..... 474
Effects of Acute and Chronic Cocaine-Poisoning..... 475
Drainage of the Peritoneal Cavity..... 475
Dangers of Antiseptics..... 476
Is Lanolin Absorbable by the Intestine? 476
Action of Antipyretics on the Liver..... 477
The Treatment of Incontinence of Urine with Rhus Aromaticus..... 477
Effects of Exposure of the Intestines.... 477
The Absorbability of Vasaline..... 478
The Earliest Symptoms of Hereditary Syphilis..... 478
Wasting of the Muscles of the Chest in Phthisis..... 479
Kawa-Kawa..... 479
Parenchymatous Injection of Strychnine for the Reduction of Enlarged Spleen..... 479
The Diuretic Action of Salicylic Acid.. 479
The Dangers of the Employment of Quinine and of Salicylate of Sodium in the Treatment of Typhoid Fever... 480
Liquefied Chloride of Methyl as a Local Anæsthetic..... 480
Hyoscine..... 480
Hydrastis Canadensis..... 481
Mercuric Alaninate..... 481
Chloralhydrocyanide..... 481
Oxynaphtoic Acid..... 482
An Instantaneous Cure of Whooping-Cough..... 482

Reviews..... 483

Correspondence.

Berlin Letter..... 486
Paris Letter..... 488
Resorcin in Eczema..... 490
Quebracho in Dyspnœa..... 491
Puerperal Measles..... 491

Notes and Queries.

Alcoholic Neuritis..... 491
Atropine-Poisoning Successfully Treated with Amyl-Nitrite..... 492
Treatment of Blepharospasmus..... 492
Creolin..... 493
High Altitudes in Phthisis..... 494
The Case of Sextuple Pregnancy 495
Ginseng 496
Experimental Researches on Tuberculosis..... 496
Treatment of Tonsillitis by Cocaine..... 497
Value of Antiseptic Precautions in Internal Urethrotomy..... 498
Bloodletting in Pneumonia 499
Two Cases of Rupture of Intestines without External Wound..... 500
Case of Rapidly Fatal Chorea..... 501
The Salicylate of Mercury..... 502
Migrainous Headache..... 502
Antipyrin or Analgesin..... 502
A Formula for Catarrh of the Throat.... 502
Concentrated Solution of Boric Acid.... 502
Naphthol β as an Antiseptic..... 503
Pichi in Affections of the Urinary Passages..... 503
Guarana..... 503
The Use of Codeine to Relieve Pain in Abdominal Disease..... 503

Original Communications.

HYGIENIC THERAPEUTICS.

ON CLIMATOTHERAPY.*

BY PROFESSOR DUJARDIN-BEAUMETZ, PARIS, FRANCE.

I DESIRE to devote this lecture, which will finish my course of hygienic therapeutics, to the consideration of climatotherapy, or the application of climate to the treatment of diseases.

By climate we understand (as Humboldt puts it) the sum of the atmospheric variations which affect our organs in a sensible manner. Climatology is a science of quite modern date, a science still very imperfect, and of which Humboldt laid down the first basic elements; nevertheless, the application of climate to the treatment of diseases is of very ancient origin.

Hippocrates has devoted an entire book (and the most noted of all) to this study of climate cure; it has for title "De Aëre, Locis, et Aquis." The physician of Cos insists not only on the sanitary conditions which ought to be objects of importance to cities, as well as the direction of winds, the seasons, and the temperatures, but he takes the pains to compare the different climates of Europe and Asia; he maintains that the constitution of nations

* A lecture delivered in Cochin Hospital.

depends on the country which they inhabit. "In general," he says, "everything that lives on the earth partakes of the qualities of the earth." Memorable words, which all the progress of comparative meteorology and geography has only served to confirm and illustrate.

We find, also, in other writings of antiquity indications sufficiently precise respecting climatotherapy. Thus, Aretæus advises patients afflicted with chest-affections to take sea-voyages and to live by the seaside; Galen, moreover, treated phthisical patients by sending them to sojourn in mountainous regions, and by milk diet; Celsus, by sea-voyages; and Pliny, by prolonged residence in pine forests. But all these facts were scattering and forgotten, and we have to come down to the beginning of this century—*i.e.*, to the birth of climatology—before we see climatotherapy established on scientific bases.

Another cause which has greatly advanced climatotherapy is the rapidity of our modern modes of transit, and the readiness with which our patients may obtain transport to distant places. Hence it is, that we see to-day almost all rich patients hasten to the seaside or mountains in the summer, and to comfortable winter stations later in the year.

I cannot here, gentlemen, make a complete exposition of climatotherapy. Medical climatology is a science of wide extent, which comprises atmospherology, meteorology, physical geography, comparative geographical physiology, and comparative pathology. It has given origin to some very important works, among which I may mention particularly the "Medical Climatology," in four volumes, of Lombard, of Geneva; the valuable treatise of Poincaré, of Nancy, on "Medical Geography;" and, lastly, the "Manual of Climatotherapy" by Weber, which has been translated into French by MM. Doyon and Spillmann, works to which we should add the article which Rochard has devoted to climate in the "Dictionnaire de Médecine et de Chirurgie pratiques," and the article which Fonssagrives has written on the same subject in the "Dictionnaire des Sciences Médicales."*

My task shall be a much humbler one, and after having briefly spoken of the elements which constitute climate, and of the physiological and pathological influence of these elements, I shall confine my study to the regions which our patients may easily occupy, and to the diseases which are the most favorably influenced by the climates of our temperate zone.

Humboldt considers as factors of climate the following elements: the temperature, the humidity, the atmospheric pressure, the winds, the electricity of the atmosphere, the degree of transparency and serenity (called by Fonssagrives the *luminosity*) of the sky, and, lastly, the presence of miasms in the air. I shall not take up this entire list in their order, but shall dwell on only the four following topics: the temperature, the humidity, the atmospheric pressure, and, finally, the purity of the air; and I shall study the physiological effects which these different elements of climate produce in order to draw therefrom useful therapeutic lessons.

The temperature is one of the most important factors of climate; the atmospheric heat is derived altogether from solar radiation. Although at a certain period in the formation of the globe the earth also furnished a contingent to this atmospheric temperature, today this influence is of but little account, as, according to Fournier, it hardly contributes to raise the temperature of the atmosphere by one-thirty-sixth of a degree.

Many causes are influential in modifying the temperature of the circumambient atmosphere. Among these causes we must assign the first place to bodies of water, which sometimes raise, sometimes lower, this temperature. You are all familiar with that immense stream, that river of warm water, whose temperature varies from 32° to 24° C., which flows with a swiftness of from five to six kilometres per hour through the Atlantic Ocean from the Gulf of Mexico to the regions of the far North. I refer to the Gulf Stream. It is owing to this current of warm water that certain regions of our country, as the coasts of Brittany and Normandy, possess an exceptionally warm temperature; it is owing to this Gulf Stream that the Isle of Jersey, the Isle of Wight, the coasts of Great Britain, have, despite their high northern situation, a climate where frosts are rare. You have, doubtless, like myself, when passing along the coasts of Normandy and Brittany, or of the Isle of Jersey, been struck at seeing there growing and flourishing in the fertile soil such plants as the fig-tree, the fuchsia, and even the eucalyptus,—plants which cannot endure the climate of Central France.

On the other hand, cold currents coming

* Lombard, "Traité de Climatologie Médicale," Paris, 1877; Leon Poincaré, "Prophylaxie et Géographie Médicale des principales Maladies," Paris, 1884; Hermann Weber, "Climatotherapie," 1886.

from the Arctic regions depress the temperature of Australia and the southern coasts of Asia; so, also, large bodies of water, like the great lakes of North America, have a marked influence on the surrounding temperature, and lower it.

The other influence which modifies temperature is altitude. As you rise above the level of the sea, the temperature tends to fall. Hence in the torrid zone, one may by availing himself of this property of altitudes obtain refuge from the intense heat of these regions, and have a climate which varies scarcely half a degree in the different seasons of the year. This, for instance, is what is accomplished by the high table-lands of South America, where we see localities such as Bogota, Antisana, Corocoro, with a mean temperature of 10.8° C. (51.4° F.) in the winter and 15.3° C. (59.4° F.) in the summer.

Chains of mountains have also a marked influence on the temperature. They protect certain localities from cold winds by constituting barriers against them; this is especially true of countries partly encircled by mountain-chains. This is what happens with respect to that fortunate region to which a recent writer has given the name of *Côte d'Azur*, and which extends from Hyères to San Remo. There flourish the orange-tree and palm, which elsewhere grow only in the southern extremity of Spain or on the coasts of Africa.

The prevailing temperature has even enabled us to divide climates according to certain isothermal lines. I need not remind you of what is meant by these words; you know that Humboldt has traced upon our globe certain lines, joining points which possess the same temperature; these he calls isothermal lines. What physiological influence has the atmospheric temperature on the inhabitants of a country?

If physiology has furnished us precise indications when we artificially raise the bodily heat, or when we lower it within certain notable limits, it gives us but little positive knowledge respecting the influence of temperate climates. Writers have been led to attribute the hepatic diseases so frequent in hot countries to the high heat, but, as Weber has well remarked, there are factors much more important in the genesis of these affections than the temperature,—viz., malarial influences, bad food, excessive fatigues, etc.

What we know is, that under the influence of a moderate temperature, as in summer in our climate, the functions of the skin are enhanced, abundant sweats are produced, the appetite diminishes, the urine becomes scanty, and, if this state is prolonged, there result enfeeblement and anæmia; hence the mortality is greater in warm countries than in the northern countries of the temperate zone. Michel Levy has indicated this higher mortality by the following figures, which indicate the mortality per annum:

From 0° to 20° of latitude		1	"	35.5	"
" 20° " 40°	"	1	"	43.2	"
" 40° " 60°	"	1	"	50	"
" 60° " 80°	"	1			

The action of cold, on the contrary, is stimulant; the circulation of the skin diminishes, but that of the kidneys increases. If the action of the cold is too prolonged or too intense, there supervenes a series of morbid accidents, with which you are all familiar, and which may go on to mortification of the tissues. The influence of cold air frequently determines congestions of the thoracic organs, and in persons subject to pulmonary catarrh, as old people, we often see cold produce fatal pulmonary congestions. It is this which explains the greater mortality of old people during the winter than during any other season. As for the humidity of the atmosphere, this results from the constant presence of vapor of water in the air, the latter containing, even when the air is driest, twenty-five per cent. of water. The condensation of this water, as you know, forms dew, mist, fogs, and clouds.

The presence of these clouds obscures the sky and diminishes its serenity. In referring to some observations made by Brea at Menton, you will see that out of three thousand six hundred and sixty-three days, there were two thousand one hundred and forty-three of complete serenity of the atmosphere, or a relation between the days of sunshine and the cloudy days of 2.5 to 1.

Clouds give rise to rain, and rain-falls augment the moisture of the atmosphere. There are countries where it never rains, and Bergauss mapped out for us on the ancient continent that immense zone where the rain seldom or never falls, and which comprises, besides Sahara, the regency of Tripoli, Syria, the borders of the Red Sea, Arabia, and a part of Persia. On the other hand, there are countries where the rain falls almost every day. In Terra del Fuego, for instance, at the time of the expedition to Cape Horn in 1882 and 1883, meteorological observations show an average of three hundred and thirty rainy days out of three hundred and sixty-five.

In confining ourselves to France, we have the following annual pluviametric mean of the different regions of France. By these words *pluviametric mean* is to be understood the quantity of rain (reckoned in millimetres) which falls per square metre.

	Millimetres.
Rhodanian climate.....	1.027
Girondin "	6.875
Central Plateau climate.....	0.860
Mediterranean "	0.790
Vosgian "	0.712
Sequanian "	0.596

This gives France a pluviametric mean of eight hundred and seventeen millimetres.

The same humidity of the atmosphere is the cause of snow, which has also a great thermic influence on atmospheric modifications,—an influence greater than is generally supposed. The snow augments the heat of the atmosphere by reflecting the luminous rays which it receives; it opposes the chilling of the ground, and thus saves vegetation, despite the most intense cold; lastly, it purifies the atmosphere. You will see, as we go on, that all these considerations have been appealed to in favor of winter stations in high altitudes.

We have no very precise indications as to the physiological effects of humidity. Under the action of dry and warm air, evaporation goes on very actively from the surface of the body, while sensible perspiration is less abundant; hence it is that people endure great heat better when the air is dry than when it is moist; so, also, when the temperature falls, and when the weather is cold and dry, we lose less heat than when it is cold and moist. This humidity of the atmosphere gives to the body a sensation of very intense cold, and this explains why it is that during a thaw, notwithstanding the elevation of the temperature, we experience a more painful sensation of cold than during periods of freezing: hence it is always during thaws that persons suffer most from colds, rheumatic affections; in a word, all the consequences of bodily chilling.

Rheumatic patients are very much influenced by damp weather; they become, as has been said, *barometric*, and can even predict changes of weather, the coming of rain, and especially of snow, by the pains which they experience. I pass now to the influence of the barometric pressure,—an influence which is considerable.

The subject of atmospheric pressure is very complex; the modifications of pressure depend, in fact, on several factors: first, on the place where the observation is made,—and here come in altitude and latitude,—then on the daily variations to which this pressure is subject, variations which themselves result from very numerous causes,—the influence of the sea or of mountains, modifications in the state of the atmosphere; lastly, the effect of currents of air, more or less violent, constituting the winds. We will examine very briefly each of these circumstances.

As a mean, the pressure of the atmosphere is represented by a column of mercury of seven hundred and sixty millimetres, which corresponds to an average pressure by weight of one thousand and twenty-eight grammes to each square centimetre of surface, fifteen pounds to the square inch, and as the surface of the human body may be reckoned at seventeen thousand five hundred square centimetres, this pressure is equal to seventeen thousand nine hundred kilogrammes. But, in proportion as you rise above the sea-level, this pressure tends to diminish; when this elevation is rapid, as happens in mountain or balloon ascensions, the individual experiences, under the influence of this diminution of atmospheric pressure, a series of phenomena which Paul Bert has dwelt upon at such length, and which are described under the name of mountain-sickness. I shall have something more to say of this *mal de montagnes* when I come to speak of the physiological effects of variations of the atmospheric pressure.

Man may also live and thrive at variable heights. The most elevated point occupied by human beings is the village of Thibet, Thok-Djalank, which is situated at four thousand nine hundred and eighty metres of altitude; the Buddhist monastery of Hanle, in Ladak, is four thousand six hundred and ten metres above the sea-level; the village of Chushul, in Himalaya, is four thousand three hundred and ninety metres. But the possibility of living at such high elevations depends entirely, as you know, on the zone in which they are situated; and while in our country man can scarcely maintain an existence at a height of two thousand four hundred and seventy metres, as at the Hospice of Great Saint Bernard, or of two thousand and ninety metres, as at the Hospice of St. Gothard, we see under the tropics large villages, and even cities, located at similar heights. Mexico is two thousand two hundred and ninety metres above the level of the sea, and Potosi four thousand one hundred and sixty-five metres. We are told of a rail-

road station in the region of the Andes which is situated at a height which exceeds that of Mont Blanc; thus the railroad from Arequipa to Puno is built at an elevation of four thousand four hundred and sixty metres.

Apart from the question of altitude, there is another factor which influences atmospheric pressure,—viz., the degree of latitude. Thus, at the equator, the barometric pressure averages seven hundred and fifty-eight millimetres; the air heated by the sun of the torrid regions tends to rise and flow towards the poles. From the equator to forty degrees north latitude the pressure goes on increasing, and averages from seven hundred and sixty-two to seven hundred and sixty-four millimetres. Then it diminishes, and keeps on diminishing to the Arctic regions, where it averages only seven hundred and fifty-two millimetres.

Along with these general variations of the barometric pressure there are others which are periodical or daily. Some are connected with the different seasons of the year, others take place every day, and you can now see in most of the journals charts where, thanks to the rapidity of telegraphic communication, are daily indicated the zones of pressure which prevail over Europe. It is by means of this study of pressures that our meteorological boards are enabled to foretell the weather.

The great air-currents enter also into this study of atmospheric pressure, and just as we see the ocean traversed by streams of warm water, the atmosphere is also ploughed by great wind-currents with fixed direction. These are the trade-winds, whose study has been so helpful to navigation. The same kind of winds, which have, so to speak, a daily and fixed direction, prevail on our sea-shores and mountains. On our sea-shores they receive the name of land-breezes and sea-breezes; in the mountains they take the name of valley-winds and mountain-winds. They are produced each and all by the variable heating of the different strata of the atmosphere.

As for the climate of our coasts, with the first morning rays of the sun the mainland becomes heated sooner than the sea, the warm air of the beach rises and takes the direction towards the sea, while there is an inverse current from the sea towards the shore, constituting the sea-breeze, which, milder in the morning, becomes stronger in the afternoon, and ceases after sunset. When the sun has disappeared from the horizon, the sea becoming cool less quickly than the land, the air near the surface of the sea rises towards the higher atmospheric regions, giving place to a current of air coming from the land; this is the land-breeze.

As for the mountain climate, the condition is similar. The surface of the valley and the foot of the mountain become gradually heated by the rising sun; the air of these regions rises slowly along the mountain, producing an ascending current, to which has been given the name breeze of the plain, or morning breeze. With the setting sun the opposite takes place, the air of the mountains descending into the valleys.

Lastly, I must mention certain winds peculiar to certain regions, as the mistral, so frequent on the coasts of Provence; the sirocco of our African coasts; the "*fohn*," which is peculiar to Switzerland, etc.

Let us now examine the physiological action of the various modifications of the barometric pressure. These effects are remarkable, and are even of greater importance than those produced by the temperature. Already, in the previous lecture on aerotherapy, I showed you the influence of compressed air. I will not return to that subject, and I will now give you somewhat rapidly a few hints as to the influence of rarefied air.

It is to Paul Bert and to Jourdanet that we owe the most precise data in this regard. In a work on the barometric pressure, Bert, analyzing with great care all that has been written on mountain sickness, and on the sojourn of man at great heights, has shown by experimental researches conducted with great scientific rigor that all these phenomena depend on diminution of the tension of oxygen in the respired air and in the blood; the air which is breathed is under low pressure, and the blood does not take up as much oxygen as under ordinary pressure; as a result, symptoms of asphyxia ensue.

Jourdanet has given the name of *anoxyhæmia* to this symptomatic aggregate, and he has laid down in his great work on atmospheric pressure a therapeutic law, according to which above two thousand metres of altitude pulmonary phthisis becomes so rare that one may affirm that it does not exist at all.

This immunity from phthisis at high altitudes varies, moreover, with countries. In our zone it is between thirteen hundred and fourteen hundred metres of altitude that we find this immunity. Müller, in fact, affirms that at this height there is only one case of phthisis to every thousand inhabitants. On

the other hand, the diseases of the heart and great blood-vessels are very frequent in these lofty situations, and this results from the exaggerated work of the heart,—a work itself necessitated by the anoxyhæmia of which I have just spoken.

How shall we explain, in accordance with the new bacteriological data, this immunity from phthisis in elevated regions? Here we are obliged to call to our aid two hypotheses; the one which we see verified by experimentation,—viz., that the exemption from phthisis is due to the purity of the air at these heights and the fewness of micro-organisms in this air. The other hypothesis is this, that perhaps this feebleness of the atmospheric pressure constitutes an unfavorable medium for the development and culture of the bacillus tuberculosis. However this may be, we have here an important fact, and one which merits all your attention.

The purity of the air plays a considerable rôle in the production and propagation of diseases. Since Pasteur has shown us by his celebrated experiments that spontaneous generation never takes place, and that wherever organisms develop the organic germs of the air are the factors of this generation, the importance of the purity of the air has become still more apparent to us.

Moreover, scientific processes of extreme rigor enable us to-day to test the purity or impurity of the air by the enumeration and culture of the micro-organisms flitting about in it, and Miquel has given us in this regard data of great value. We may even lay down a law that the fewer germs the air contains the purer it is, and while at the top of Mont Blanc, or in mid-ocean, one will scarcely find one micro-organism per cubic metre, you will meet them by thousands in the air of our hospital wards. At the same time, we should add that when these micro-organisms from the air have been collected with great care and inoculated in animals, they have not thus far been able to develop in them any organic changes whatever.

Lastly, I should mention, in concluding what pertains to the factors of climate, atmospheric electricity and ozone. Since the labors of Berigny, of Versailles, and of Pietra-Santa, who have shown that the ozonometric curves are in a ratio inverse to the temperature, an important rôle has been attributed to ozone in the production of certain diseases, and, in particular, of cholera. Nothing has been since brought to light to confirm these data, and we are still ignorant of the real part which ozone plays in the production or in the cure of diseases.

I have now finished what pertains to the elements of climate; it only remains now for me to speak of the divisions of climates and of their application to the treatment of diseases. This I shall touch upon as briefly as possible.

Numerous classifications of climates have been proposed, and, as a basis of classification, that climatological element has been taken which appears to be the most important,—viz., temperature. Michel Levy has divided our globe into three great zones,—the torrid zone, extending from the equator to 35° north and south latitude; the temperate zone, from 35° to 55° north and south latitude; the frigid zone, from 55° to the poles.

Jules Rochard, instead of following the degrees of latitude, has bounded his zones by the isothermal lines, and these are his five divisions:

Torrid or hot climate, from the equator to the isotherms of 25° C.

Warm climate, between the isotherms 25° and 15° C.

Temperate climate, between the isotherms 15° and 5° C.

Cold climate, between the isotherms +5° C. and —5° C.

Polar climate, between the isotherms —5° C. and —15° C.

These divisions take account only of one of the factors of climate. You will not, then, be surprised that other climatologists have based their divisions on the degrees of humidity, as Thomas has done, or even on the degree of barometric pressure. Weber has comprised in his divisions all the climatological elements of which I have spoken, and he has given a classification much more useful for medical purposes than his predecessors. He divides all the climates into two great classes,—the climates of the coast, or maritime climates, and the climates of the interior, or continental climates. He subdivides the first into humid maritime climates with very elevated temperature, into humid maritime climates with moderate temperature, into maritime climates of mean humidity, and maritime climates warm and dry. The continental climates are divided into climates of the mountain and climates of the plain.

In order that you may have a clear idea of this classification, I will cite the most important stations which are embraced in these divisions. Thus, among the humid and hot

maritime climates are included Madeira, Teneriffe, the Canary Islands; among the humid maritime climates with moderate temperature, the Isle of Bute and the Hebrides Islands; among the maritime climates of mean humidity are placed Algiers, Ajaccio, Riviera di Levante, and the cities which are there contained, and the Isle of Wight; among the warm and dry maritime climates, the Riviera di Ponente,—*i.e.*, all the stations comprised from Hyères to San Remo.

As for the continental climates, the division into climates of altitude and climates of the plain is easily understood. In the climate of altitude are all the stations established at great expense in the Engadine, such as Davos Platz, Davos Dorfli, St. Moritz, Sarmaden, etc. In the climates of the plain are Pisa, Pau, Amélie les Bains, Egypt, etc.

I cannot here enter into a description of all these stations, and if it were necessary to mention the advantages and disadvantages of each of them, this entire course would not have sufficed. Therefore I shall speak to you very briefly of the therapeutic indications deducible from the considerations into which I have just entered, and among the diseases tributary to the climatic treatment I shall mention especially, rheumatism, albuminuria, scrofula, and diseases of the lungs.

Of all diseases, those which seem to be most favorably influenced by climate are certainly the affections of the lungs, and it is easy to understand this beneficial action when you think of the direct and incessant contact of the air with the pulmonary parenchyma, and if sudden variations of temperature may occasion bronchitis and pulmonary inflammations, a pure air at even temperature acts in a contrary sense, and causes disappearance of the pulmonary congestions which have been engendered.

There is one disease of the lungs especially in which climatic influence plays a preponderant rôle,—viz., phthisis pulmonalis,—and we see tuberculous subjects everywhere endeavoring to find in regions more or less appropriate a climate favorable to the cure of their pulmonary affection.

The number of works which have been written on this question is considerable,—more, in fact, than I can mention. I must, however, call your attention to the work of Williams, entitled "A Study of the Effects of Warm Climates in the Treatment of Pulmonary Consumption," in which we find statistics which have a real importance. Out of two hundred and thirty-five phthisical patients sojourning in warm countries, Williams found one hundred and three cases that underwent improvement, thirty-three that remained stationary, and ninety-nine in which the condition was worse for the change; so that we see that almost half of these tuberculous patients had derived an advantage from the warm climate.

This writer, moreover, has pushed his researches farther, and has established the percentage of ameliorations, of stationary states, and of aggravations, according to the different winter stations where these patients sojourned, and these are some of his figures:

1. *Temperate and Moist Climates of the Interior* (Arcachon, Pau, Bagnères de Bigorre, Rome).—52.7 per cent. improved, 7.83 per cent. stationary, 44.8 per cent. made worse.

2. *Dry Climates of the Basin of the Mediterranean* (Hyères, Cannes, Nice, Menton, San Remo, Malaga, Ajaccio, Palermo, Malta, Corfu, Cyprus, Algiers).—58.5 per cent. improved, 20.7 per cent. remaining stationary, 19.6 per cent. made worse.

3. *Very Dry Climates* (South of Europe, Egypt, Syria, Cape, Natal, Tangier).—61.8 per cent. improved, 24.6 per cent. stationary.

4. *Moist and Warm Climates of the Atlantic* (Madeira, the Canaries, St. Helena, West Indies, India in general, New Zealand, South America, Andes).—52 per cent. improved, 14.7 per cent. stationary, 35.5 per cent. made worse.

But while some authorities have advocated these warm lowland climates as preferable in consumptive diseases, others have claimed the superior advantages of highland climates (climates of altitude), and we see both kinds of rival sanitaria (the upland and the lowland) have their advocates and their opponents, the one party maintaining that the stations of altitude have a direct remedial action on tuberculosis, while the stations of the plain, or of warm countries, simply enable tuberculous patients to live, or, as Professor Jaccoud has well said, "The climates of altitude are the curative agents in the treatment of tuberculosis, while the climates of the plain are only the tests (*témoins*)." Others, on the contrary, affirm that the climates of altitude impress upon tuberculosis a much more rapid progress.

How are you going to be guided in the choice of a winter station for a tuberculous patient? This is one of the most delicate of questions, for in this curative action of winter stations climate does not play an exclusive part. There are other factors almost as im-

portant, which I can but just mention in this connection. First, questions of comfort, that pertain to the habitation, then of diet,—it is certain that people generally are habituated to a special dietetic regimen, which they desire to find in the country to which they resort. Do not forget, also, that you have to do with patients whose appetite is enfeebled, and who have need of all the resources of refined culinary art in order to keep up their appetite and nutrition, and you will readily understand why certain stations ought to be abandoned, despite the efficacy of the climate, by reason of all these desiderata. To cite an instance, the borders of the Nile have been much vaunted as a place of resort for tuberculous patients. Nevertheless, such patients would find it difficult to obtain in these regions such products of the cuisine as would excite the appetite, or even suitable hotel accommodations to enable them comfortably to rest after the fatigues of the voyage. The same reservations which I have made respecting the comfort of habitations, and the kind of food and the way it is cooked (in all which respects so much is lacking), I may make with regard to the amusements and diversions at these stations. There are stations where the tuberculous patient will find nobody who can speak his language, and you readily understand how lonesome he must be under these circumstances. All these things must enter into consideration, I repeat, when you are called upon to decide as to the place where your patient shall pass the inclement season.

But in taking account only of the indications of climate we may lay down the following rules: Where you have to do with individuals predisposed to tuberculosis, or in the case of lymphatic patients, where the tuberculosis progresses with extreme slowness (we used to call these cases *tuberculosis of scrofulous form*), you may recommend the stations of altitude. The pure air which they will there breathe, the stimulating and revulsive action on the integuments of this bracing air, the enhanced activity of the respiratory functions,—everything tends to energize nutrition in these patients and constitute a medium refractory to the development or invasion of the bacillary element. The stations of the Engadine possess to-day hotels admirably equipped, furnished with covered walks, which enable the phthisical to stroll and take exercise even in bad weather, and enjoy in the midst of the snows and storms that prevail at these heights all winter long all the comforts of modern life.

On the other hand, when the tuberculosis has engendered disorders of some considerable extent in the lungs, it is necessary to avoid these climates of altitude and seek in preference the milder climates of the plains; and here we must establish a difference between phthisis with rapid or congestive form and tuberculosis of slow form.

In the congestive forms, you will recommend the moist and warm climates (Madeira, Pisa); in the slow forms, on the contrary, the warm and dry climates,—the coasts of the Riviera, of Hyères at San Remo, Pau, and Algiers, etc., are to be preferred.

If phthisis is favorably influenced by change of climate, there are other pulmonary affections which may be completely cured thereby,—chronic bronchitis, for instance, pulmonary catarrh, and asthma.

The treatment of asthma is almost always a question of climate, but here, as I have said elsewhere,* all the conditions which we have enumerated are operative or not according to the patient whom you have to treat, and often it is in the most damp and unwholesome climates that the asthmatic will obtain cure from the attacks from which he suffers.

Thus far I have spoken only of lowland climates and climates of altitude; I must say a few words respecting maritime climate. Some have, in fact, in the treatment of tuberculosis, counselled a sojourn, not by the seaside, but on the sea itself, and we see to-day our *confrères* across the Channel send their tuberculous patients in suitably equipped sailing-vessels (not steamships) on long voyages to Australia or around the world.

I cannot say that I believe in this kind of treatment, which is absolutely incompatible with our French manners and habits of living, and our own countrymen, who are so averse to sea-voyages that they even dread the twenty-four hours' sail which separates Marseilles from Algiers, would absolutely refuse, no matter what advantages might seem likely to be derived therefrom, to live a year or so upon the ocean.

Scrofula, which must now be linked to tuberculosis, at least by its anatomo-pathological lesions and its microbiology if not by its clinical history, demands a quite special climatic treatment. Here sea air has an influence which is really efficacious and often truly marvellous. What we see at the hospital of Berck-on-the-Sea in the case of scrofulous

* Leçons de Clinique thérapeutique, t. ii., chapter "On the Treatment of Asthma."

children of our hospitals sent there is an undeniable proof of this. Therefore we see these sanitaria, so useful for the restoration and healthy development of the scrofulous youth of our great cities, becoming more and more numerous. If the sea air is favorable for combating scrofula and lymphatism, it has baneful effects on nervous people; by its excitant action it provokes an exaggeration of the disorders of the nervous system.

Such are the few remarks which I desired to make concerning climatotherapy. I have had time only to touch upon the subject; it remains for you to pursue the matter farther by studying the special works pertaining to the climate-cure; but I felt that I could not terminate these lectures without calling your attention to this most important curative agency.

I have now concluded this course of hygienic therapeutics. Last year I spoke to you of alimentary hygiene; I have thus accomplished the task which I had in view. I have shown you, at least I hope that I have, that by the side of the medicinal agents which are so numerous, and which constitute pharmaceutical therapeutics, there are agents quite as useful, perhaps even more powerful, drawn exclusively from hygiene, and which it is your duty to employ in a great number of cases, and I conclude in the words of Hippocrates, written at the head of his treatise on the "Air, Waters, and Places": "Whoever would know the art of healing, must not neglect the subjects of which I have here spoken."

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*NOTES ON THE INTERNAL USE OF MENTHOL AND OF SAFFROL IN THE TREATMENT OF HEADACHES, NEURALGIAS, AND OTHER PAINFUL AFFECTIONS.**

By C. L Dana, M.D., New York City.

MENTHOL has been used externally as an anodyne for thousands of years by the Chinese and Japanese. The oil of peppermint has been used for the same purpose at least since the time of Pliny the Younger. This author also recommended its internal use in digestive troubles and as a stomachic.

Delioux de Savignac recommended the oil as a local application, and also used it hypodermically (locally) for neuralgic and myalgic pains. He also employed it locally in bronchial and laryngeal troubles.

Dr. A. Schmitz has prescribed menthol internally in doses of gr. ii to iv for digestive and bronchial disorders.

Rosenberg and Beehag have used it in phthisis, Cutter in influenza, and Salisbury in diphtheria, the latter giving a gr. $\frac{9}{10}$ every hour. (Quoted by Langaard, *loc. cit.*)

Recently the oil or the camphor has been used by a number of persons in the local treatment of nasal, pharyngeal or laryngeal, and bronchial affections.

So far as I can learn, however, Dr. Wm. M. McLaury, of this city, was the first to use menthol internally in neuralgia.

About a year ago he suggested to me that it gave efficient relief in migraine. Since then I have used it in many and various disorders, and have come to look upon it as a valuable addition to our pharmacopœia.

Chemistry.—Menthol ($C_{10}H_{20}O$) is classed as a camphor, though it does not strictly belong to this group. All the essential oils have probably an oxidized and a non-oxidized hydrocarbon radical. Menthol is the oxidized radical of oil of peppermint. It is extracted from this oil by cold and pressure. It is not a salicylate, like the oil of wintergreen and oil of birch; nor of the nature of a phenol, like thymol; nor has it any analogies to the anodyne derivatives of aniline.

It is soluble in alcohol, ether, and chloroform, but not in water. Hot water, however, holds it in fine suspension for a time.

Physiological Properties.—Locally it is at first irritant, then it produces a sensation of coldness and some analgesia, but not very much anæsthesia (Savignac). Schmitz believes that it acts as an anæsthetic only by direct contact with and paralysis of the peripheral sensory nerves. He found that it stimulated the salivary secretory nerves, and it probably does the same to the gastric nerves. It has a specific stimulant action on the thermic nerves (Goldscheider).

Taken internally, in doses of gr. v to gr. xx, I have found it to cause a sensation of warmth, lasting from a half to two hours. It strengthens but does not much quicken the heart-beat, and raises arterial tension. This is shown by the accompanying sphymographic tracings of the radial pulse, taken by my house physician, Dr. Jas. Stafford, in a patient aged about 50, suffering from sciatica. The heart was normal.

Savignac also found that the drug stimulated the heart, but did not quicken it. In some cases it causes profuse perspiration and increased flow of urine, the acidity of which, I believe it, like thymol, increases.

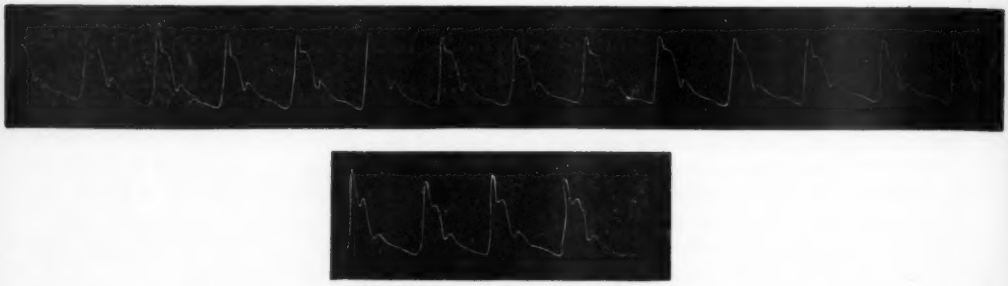
* Read at a meeting of the Practitioners' Society of New York, May 18, 1888.

It is eliminated in a modified form in part by the kidneys (Savignac), and probably in part by the lungs.

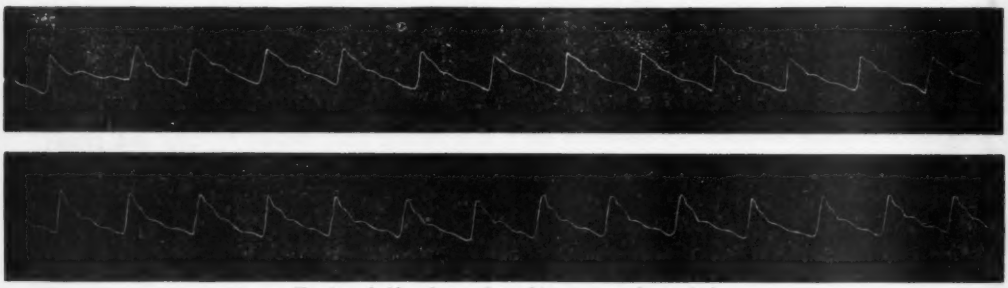
It rarely or never causes nausea or gastric irritation in doses of even ʒi to ʒiss daily, unless its use be long continued.

CONCLUSION.

From my experience I conclude that menthol, taken internally, in doses of gr. v to gr. xx, is a heart stimulant and nerve anodyne. It is particularly useful in cases of migraine, supraorbital neuralgia, and of neuræsthenic,



Tracings before the use of menthol.



Tracings half an hour after taking gr. xx of menthol.

Menthol is a powerful antiseptic, being about twice as strong as carbolic acid (MacDonald). Since it can be safely given in doses twenty times as large, it is for purposes of internal administration superior, except that it is not soluble in water.

Medicinal Action.—I have used menthol now for nearly a year, and in a large number of cases. At first I kept no notes, and consequently I cannot place all my experience on record. The following are recorded cases:

	Cases.	
Migraine	5	Relieved in four cases.
Anæmic headache	5	Relief.
Congestive headache	2	Temporary relief.
Sciatica	4	Temporary benefit in two cases.
Multiple neuritis	2	Very marked benefit in one case.
Neurasthenic headache	3	Relief decided.
Locomotor ataxia	2	Relief in one case.
Intercostal neuralgia	1	Relief.
Acute rheumatism	6	Benefit temporary in two cases; no benefit in four cases.
Hectic of phthisis	1	Stomach irritated.
	31	

gastric, and anæmic headaches. It is helpful in some sciaticas. It is of no value in acute rheumatism, though it seems to have some antipyretic power.

It is not a specific or uniformly certain reliever of pain, but I can say confidently that it has not disappointed me more than antifebrin or antipyrin.

Practically, I regard it as an efficient and cheap substitute, in many cases, for antipyrin, and acting especially well in weak and anæmic persons, to whom, perhaps, antipyrin would not be a safe drug.

Of its value in diphtheria and bronchial affections I cannot speak, but Dr. McLaury tells me that he has found it very useful here.

It is best given in the form of a twenty-five per cent. alcoholic solution dose, ♏x to ʒss, in a wineglass of hot water. Or, it may be given in the form of capsules.

The following formulæ may be used:

℞ Sprts. rectificat., ʒi;
Menthol (cryst.), ʒii;
Glycerin,
Syr. simpl., ää ʒi. M.
Sig.—ʒi dose in hot water.

℞ Menthol, ʒi;
Sacchar. lact , gr. xii. M.
Div. in capsule No. xii.
Sig.—Dose, i to ii capsules.

It may be combined with antipyrin, or, better, perhaps, with antifebrin,—*e.g.:*

℞ Menthol,
Antifebrin, āā ʒi;
Sacchar. lact., q.s. M.
Div. in capsule No. xxiv.
Sig.—Dose, ii capsules.

Mr. David Hays, of this city, has made for me some five-grain compressed tablets of menthol, and of antifebrin and menthol. These are convenient forms of administration. I cannot yet say whether they are so efficient as the dissolved drug.

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Saffrol.

Saffrol ($C_{10}H_{10}O_2$) is the camphor of the oil of sassafras. It is liquid at ordinary temperatures. It is a substance with the odor and taste of the oil of sassafras itself. It is not nearly so pungent or irritant locally as menthol, and for this reason it may be found to be a better drug.

Oil of sassafras has been used locally and internally in neuralgias. I myself gave it internally in doses of ♏v several years ago, but with not much success.

Recently, however, I have employed the camphor—saffrol—in cases of myalgia, sciatica, and headache with apparently very good results.

The dose used has been ♏xx, but this may be increased. There is no doubt that very useful anodyne properties exist in the camphors so called of the essential oils. Perhaps some are better than those I have used. The field for experimentation is so large that I present my results now in the hopes that they may encourage others to further investigations in the same line.

I am under obligations to my house physician at Bellevue Hospital, Dr. Jas. Stafford, for the interest shown and the help given in prosecuting these studies.

FLUO-SILICATE OF SODIUM.

By Conrad Berens, M.D., Philadelphia, Pa.

IN February, 1888, Mr. F. H. Rosengarten kindly supplied me with a sample of fluo-silicate of sodium that he had prepared for investigation. The results of the experiments with the chemical in the laboratory, a preliminary report of which was published in the *Medical Register* of April 14, 1888, were so satisfactory as to lead to a more extended examination into the apparent virtues of the preparation as an antiseptic. In the experiments referred to above it was found that vegetable and meat infusions containing bichloride of mercury in the strength of one to one thousand, and those containing carbolic acid one to forty, were not proof against the inroads of bacteria, while similar solutions under identical conditions and containing fluo-silicate of sodium, one to one thousand, remained untainted. These latter solutions even now, after four months' open exposure to the air, have yet to show any signs of life. In April a series of check experiments was started, as follows: Infusions of hay, beef and mutton, juice of a pineapple, orange, and lemon were taken and divided among five series of test-tubes,—A, plain; B, each containing one to one thousand bichloride of mercury; C, each containing one to one thousand salicylic acid; D, each containing one to forty carbolic acid; and E, each containing one to one thousand fluo-silicate of sodium in the three infusions, and six to one thousand in the juices. This variation in the uniformity of strengths in favor of the sodium solutions was made because it had been found that juices containing the fluo-silicate of sodium in the proportion of five to one thousand had afforded only negative results.

The 10th of June showed all of the infusions save those containing the sodium to be entirely possessed by both bacteria and fungi;

while of the juice, those containing carbolic acid, bichloride of mercury, and of course the plain ones, were all unfit for consumption. Of those containing salicylic acid, the orange was undergoing fermentation, the pineapple and lemon being quite normal, not only to the eye and tongue, but also with the microscope. Those containing fluo-silicate of sodium were in excellent condition, the lemon alone showing a small fleck of fungi floating on its surface.

In another set of experiments urine was used as the fluid, and bichloride of mercury, one to five hundred, was compared with fluo-silicate of sodium, one to five hundred. The specimen containing the bichloride of mercury was found entirely decomposed and quite offensive after eight days, while even after three weeks the specimen containing the fluo-silicate remained free from ammoniacal odor, and showed no living vibrios under the microscope.

To test the deodorizing properties of fluo-silicate of sodium a six to one thousand solution was prepared and sprayed over the surface of a large cancerous growth springing from the right orbit of a child, and which was exceedingly offensive to the sense of smell. The result was most happy, the odor being killed at once, though bichloride of mercury in solution of one to five hundred had repeatedly failed to have any effect on the offensiveness of the same growth, while eucalyptol in twenty per cent. solution had only replaced the bad smell arising from the growth by a sorry mixed smell of turpentine and decomposing meat. Poured over fæces, the sodium silico-fluoride at once destroys the smell. After post-mortem examinations the sodium silico-fluoride rubbed on the hands while wet leaves them, when washed again, with not only no odor, but also no wrinkling of the skin and no anæsthesia, such as washes of carbolic acid and of bichloride of mercury produce.

When equal parts of a fifty per cent. solution of egg albumen and a one to one thousand fluo-silicate of sodium solution are mixed together, the albumen is at once coagulated. Experimentally, thus it has been proved that sodium silico-fluoride is a prompt germicide, an efficient antiferment, an excellent deodorant, and coagulates albumen. The salt is prepared by generating hydro-fluo-silicic acid, passing it into water, and then saturating the liquid with carbonate of sodium. The salt is non-volatile, and is not destroyed by oxidation. It is freely soluble in water at 60° F., in proportions not exceeding half a grain to the drachm, the resulting solution being of a slightly saline and acid taste, perfectly limpid and odorless.

With these conclusions reached, or rather pointed to, the chemical was ready for those clinical trials that have so often proved disastrous to the reputation of promising antiseptics.

In solution fluo-silicate of sodium is of a slightly acid and very "clean" taste, unoffensive even when as much as ten grains in four ounces of water are taken internally on an empty stomach. As high as ten grains in solution have been taken internally three times daily for one week without any noticeable effect, though no analysis of the urine voided during this time was made.

In the conjunctival sac, solutions of the strength of two to one thousand cause a momentary sense of constriction about the lids, followed by a sense of great comfort and smoothness.*

Dr. P. D. Keyser reports that in all of his cataract cases during the past five months he has used sodium silico-fluoride in one-tenth per centum solution without having to report a single case of suppuration. Dr. Keyser also states that he has used the solutions of this salt in not only his clinics at Wills Eye Hospital and the Medico-Chirurgical Hospital, but also in his private practice, with uniformly good results in both catarrhal and suppurative conditions; one case of violent purulent conjunctivitis yielding after three days.

Dr. H. E. Goodman reports that sodium silico-fluoride dusted over the slough in case of gangrene caused it to quickly separate, while under a continued use of solutions of the drug the surface was stimulated to a rapid healing.

Dr. Ziegler, resident surgeon of Wills Eye Hospital, reports that sodium silico-fluoride in one-tenth per centum solutions has been used at the hospital during the past five months, and that the results more than satisfy him for the change from bichloride of mercury solutions, purulent and catarrhal conditions yielding very promptly to the instillations.

Dr. B. Berens reports three cases of gonorrhœa, all of which were cured in three days

* For convenience in clinical work, some tablets containing sufficient sodium silico-fluoride to make a known solution when added to a given quantity of water may be prepared.

by injections of sodium silico-fluoride solutions in solutions of one to two to the thousand.

In twenty-two cases of acute catarrhal conjunctivitis, solutions of sodium silico-fluoride, one to two to one thousand, cured in four to six days.

Two cases of ophthalmia neonatorum, the one of two weeks' standing, the other of four days' standing, were both cured within five days by the instillation of sodium silico-fluoride in solutions at first two to one thousand, and later of one to one thousand, every half-hour. After four hours the character of the discharge had changed for the better.

In twelve cases of suppurative otitis the parts were brought into a healthy condition within a week by the instillation into the ears of a warmed solution of fluo-silicate of sodium from three to six times daily, and in the strength of two to the thousand.

During the past five months sodium silico-fluoride solutions of the strength of two to the thousand have been used in spray at the nose and throat clinic of the Medico-Chirurgical Hospital with uniformly good results. The solution destroys the odor of the inspissated mucus in atrophic rhinitis, and stimulates the underlying mucous membrane to healthy action.

In four cases of leucorrhœa, douching the vagina with sodium silico-fluoride—ʒss to the pint of water—caused the discharge to cease in from four to ten days.

In two cases of ulcerated cervix uteri with offensive discharge the ulcers healed, one in three days, the other in five days, the only treatment being douching the parts with three-tenths per centum solutions of fluo-silicate of sodium.

In one case of chronic laryngitis with ulceration, spraying the parts with sodium silico-fluoride, grain one-half, or one grain to fluid-ounce, night and morning, healed the ulcers in three days, while the continued use of the spraying for two weeks removed all hoarseness. In two cases of gleet, the one of two months' and the other of five months' standing, injections of one-tenth per cent. of solution of sodium silico-fluoride three times daily resulted in cure after ten days. In two cases of acid fermentation in the stomach powders containing one grain sodium silico-fluoride gave prompt relief, administering one in water after eating. In two cases of balanitis, injections of two-tenths per cent. sodium silico-fluoride solutions removed all inflammatory symptoms after twenty-four and thirty-six hours respectively, complete relief resulting after two days. In one case of tinea circinati, applications of solutions of sodium silico-fluoride six-tenths per cent. strength allayed the itching at once, and cured the disease in five days.

In conclusion, then, it has been shown that sodium silico-fluoride is practically harmless; that it is more efficient than either bichloride of mercury or carbolic acid, in such doses as are not harmful or dangerous, in preventing decomposition; that it is extremely efficient in inflammatory conditions of the mucous membranes; and that in conditions associated with the production of pus and the results of fermentative processes fluo-silicate of sodium acts with prompt and harmless efficiency. The more extended clinical use of the drug, I believe, will go to add further support to the evidence of its promptness and efficiency. These are reasons sufficient to call the attention of the profession to this drug.

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*ON THE EFFERVESCENT FORM FOR THE ADMINISTRATION OF CERTAIN REMEDIES.**

By Frank Woodbury, M.D., Philadelphia, Pa.

THE sixth revision of the United States Pharmacopœia contains two preparations intended to be administered in effervescent form,—liquor magnesii citratis and magnesii citras granulatus. The latter is a new introduction by the Committee on Revision, and represents a class of pharmaceutical preparations which of late has increased rapidly in favor with the profession and the public.

Enterprising manufacturers have now placed at our command a large assortment of drugs in combination with granulated effervescent salts, some of which certainly offer special advantages of administration.

The Committee, in the same revision, for some occult reason, dropped from the Pharmacopœia the popular carbonic acid water, although it is known to be the main support of many so-called drug-stores, which could manage to get along far better without a license than without the soda-water fountain and its attendant cigar-stand. In addition to the forms first mentioned, which are or have been officinal, there are other effervescent

* A paper read before the Medical Society of the State of Pennsylvania, June 5, 1888.

agents, the extended use of which as beverages demonstrates their adaptability to fill a real or a supposed want. Sparkling mineral waters, the principal medicinal component of which is carbon dioxide, have been celebrated, *primus inter pares*, for their salutary qualities from the earliest ages. The temples of Æsculapius were frequently placed by the side of springs noted for their health-giving properties. One of these at Dodona, in Epirus, was especially famed for containing large quantities of gas. In our own day aërated mineral waters, highly charged with carbonic acid, like Congress Spring at Saratoga, or the Apollinaris, or Vichy, are consumed in enormous quantities both at the table and in the sick-room.

Among highly effervescent, non-officinal remedies often given to the sick, which enjoy the sanction of age and custom, are sparkling wines and malt liquors, which owe most of their palatability and popularity to the excess of gas which they contain. This is so true that if persons who habitually drink these beverages were to be compelled to choose between the carbonic acid and the alcohol, a very brief trial would suffice for them to decide that the latter could be more easily dispensed with than the former. No one drinks beer after it is flat.

It appears to the writer that if science could furnish a palatable, effervescing infusion of hops, free from alcohol, the cause of temperance and public health would be greatly advanced. The therapeutic effect of these agents is principally owing to their excess of carbonic acid, which largely enhances the intoxicating influence of the small proportion of alcohol which they contain. In these solutions the effervescence is due to the fact that they have a larger proportion of gaseous constituents than they can hold under the existing conditions of temperature and atmospheric pressure; the excess of gas therefore escapes, causing effervescence or bubbling.

All natural water, even ordinary drinking-water, contains gases in solution, and owes to them a peculiar flavor, the absence of which makes us pronounce distilled water tasteless and unsatisfying.

When water is heated, or placed in an air-pump so as to reduce the atmospheric pressure, the gas freely escapes in small bubbles, giving the appearance of boiling to the liquid (*ex fervescere*).

Mineral springs differ from ordinary water chiefly in the fact that they possess a much larger proportion of gaseous impurities. The chief agent of this kind in all natural waters is carbon dioxide; the other gaseous contents are nitrogen, oxygen, and various compounds of hydrogen, with sulphur, chlorine, carbon, etc. In the case of sparkling wines and liquors, the principal gaseous constituent is also carbon dioxide (carbonic acid gas).

An attempt has been made by Dujardin-Beaumetz to introduce oxygenated effervescent waters into therapeutics, and they have been used to some extent in Paris hospitals. Although the stomach is not a respiratory organ, it is possible that in exceptional cases a certain amount of oxygen may be introduced into the blood by drinking oxygenated waters. It is even probable that they may have some utility, administered either by mouth or rectum, in cases of asphyxia, or poisoning by carbon monoxide, hydrogen sulphide, phosphorus, etc., but their principal usefulness may still consist in their local effects upon the mucous surfaces. Hydrogen sulphide gives the characteristic uninviting odor to the sulphuretted waters, which not only serve as local stimulants, but enjoy a well-established reputation as alteratives in rheumatism. Recently, Dr. H. C. Wood has advocated their use in phthisis as a means of introducing hydrogen sulphide into the blood in preference to the now obsolete method of rectal inflation introduced by Bergeon, which, as it was defended on purely empirical grounds, may not inappropriately be called the *a posteriori* method of treating phthisis. I consider that the phrensy which overtook many of the prominent therapeutists with regard to the so-called Bergeon method is scarcely creditable to modern medical science; it is an illustration how fashion may prevail in medicine, and affords another illustration of the truth of the Hippocratic maxim, that "experience is fallacious and judgment difficult."

In speaking of effervescing preparations in medicine, our attention is directed almost exclusively to carbonic acid gas (CO_2): on account of its ubiquity; the convenience of obtaining it in any quantity by fermentation or chemical reaction; and of its acceptableness to the palate and stomach.

It is, therefore, strange that modern works on therapeutics so generally ignore the effects of carbon dioxide as a medicinal agent. It plays as important a part in the animal economy as it does in the vegetable. The tissues are bathed with it, and the blood constantly contains a large proportion (thirty per cent. by volume); experiments show that blood has

nearly twice the affinity for carbonic acid gas that pure water possesses, and will absorb nearly twice its volume.* As carbonic acid is always present in the animal body, it must play an important part in nutrition, though this point is hardly within the scope of my paper. We may say, however, that since it appears to be the normal stimulant to the pneumogastric nerve at both of its extremities, it probably has other functions. At all events, the popular view that carbonic acid is purely and simply a waste product in the animal organism is clearly erroneous. I believe myself that it exerts a very important influence by retarding oxidation and preventing excessive combustion in the tissues in the body just as it does outside of the body.†

Effervescing remedies are rarely mentioned in current works on therapeutics, although we can scarcely pick up a book on practical medicine written a generation ago without finding in the section on fever some reference to effervescing draught, which, indeed, Mitchell‡ in his work on "Materia Medica," published thirty years ago, pronounces almost indispensable. To-day this once famous mixture is scarcely known, and is rarely prescribed, while antipyretics, cardiac sedatives, and other toxic agents seem to be the rage. Let us hope that the pendulum may again swing back to the more safe, though less heroic, treatment of fever by diet, diaphoretics, and effervescing draughts.

Proceeding to the specific application of the effervescing form of medication, we notice, first, that they afford a valuable means for the administration of nauseous or disagreeable medicines. Castor oil is elegantly dispensed in a glass of carbonic acid water. Turpentine, capsicum, aromatic spirits of ammonia, croton oil, quinine, and many other badly-tasting drugs, may also be given in this way. In some agents where considerable dilution is desired, as in the bromides and iodides, potassium chlorate, or saline purgatives, their administration in carbonic acid water has a double advantage. Small quantities of alcohol, it is well known, have much more physiological action when given in the effervescent form than in the shape of spirits. Champagne and sparkling wines have a well-established reputation in therapeutics for promptness of action as cardiac and cerebral stimulants.

Malt liquor, especially a light beer, on account of the hops it contains, is, when properly given, a better hypnotic than bromide of potassium, and is less objectionable than opium. It is useful in gastralgia or nausea, or, as it acts freely on the kidneys, it is almost invaluable in renal colic. A friend, Dr. Bernardy, of this city, tells me that he has used it freely, as a food and stimulant, in children suffering with diphtheria, with most remarkable results. As previously remarked, I consider beer a valuable medical agent, but believe that the alcohol present is not its principal or most important constituent. When taken in quantities sufficient to cause its intoxicating effects, beer produces a form of drunkenness peculiarly obnoxious to the American temperament and physical constitution.

Effervescing solutions are useful in general conditions of disease. In fevers, for the relief of thirst, Vichy water, Apollinaris, or carbonated distilled water, may be given alone or with lemonade, or with milk or cream; these are not only grateful to the patient, but tend to reduce the temperature, and favor the action of the skin and the kidneys. In diphtheria, carbonated drinks are very acceptable, and malt liquors also contribute to maintaining the failing nutrition, and to preventing the conditions favoring the occurrence of heart-clot. Effervescing chalybeate preparations are often better borne in anæmia than any other.

In diabetes, Martineau has claimed remarkable results from the use of lithiated arsenical water administered in effervescing form. He

* "Water absorbs its own volume of carbonic acid gas at ordinary temperature and pressure. Fresh defibrinated blood will take up for each 100 volumes 178.3 volumes of carbonic acid at 48° F., and this proportion is even much larger at the normal temperature of the body (Meyer)." (Carpenter's "Physiology," American edition, Dr. Francis G. Smith, 1876.)

† Priestley's cases of consumption treated by carbonic acid gas, mixed with ordinary air, are worthy of more attention than they have received. Beddoes's observations on consumption are also interesting in this connection. ("Observations on the Nature and Cure of Calculus, Sea Scurvy, Consumption, Catarrh, and Fever: together with Conjectures upon several other Subjects of Physiology and Pathology." By Thomas Beddoes, M.D., London, MDCCXCIII.)

‡ "Materia Medica and Therapeutics." New edition. Philadelphia, 1857. By Thomas D. Mitchell. He also gives the following formula, "exhibited by Dr. Bayles, to arrest vomiting and irritability of the stomach, with great success:

℞ Carb. pot., gr. xx;
Aq. menthæ pip., ℥i;
Tinct. catechu, ℥i;
Syrup simp., ℥ii;
Tinct. opii, ♏x. M.

Dissolve eighteen grains of citric acid in an ounce of water, or have in readiness a tablespoonful of lemon-juice. Let the patient swallow the mixture of carbonate of potash, and then the acid solution or lemon-juice. The effect is immediate, and often proves salutary."

reports sixty-seven definitive cures in gouty diabetics, treated by the use of a litre of this solution daily, taken with the meals.

In local affections of the digestive tract, effervescing agents are commonly resorted to. For the relief of vomiting, some practitioners of half a century ago used to administer the effervescent powders *ad duas vices*, the alkali first, the acid next, with surprising effects to the patient. This vigorous treatment would not to-day be appreciated outside of hospital or dispensary practice, although its results were doubtless prompt, if not exactly brilliant. The administration of small Seidlitz powders, taken while effervescing, is constantly resorted to with excellent effect where vomiting is persistent. The sedative action of the carbonic acid gas is also seen in the relief of severe gastralgia or enteralgia. Where constipation is caused by rich and highly-concentrated food, so that the bowel is not sufficiently distended, the administration of saline laxatives in effervescent form is especially useful, as is witnessed by the popularity of the solution of the citrate of magnesia. In disordered digestion, accompanied by headache, the condition popularly known as sick-headache, the effervescent preparation may be given alone, or combined with bromides or other agents. In true migraine, the combination of a small amount of deodorized tincture of opium with each dose will give much more speedy relief than without this addition.

This list of applications might be largely extended, and can be increased from the experience of each of you who honor me by listening to this communication. The object of writing it is to call attention to an oversight in present therapeutic literature, not without the hope that the next Committee on Revision of the Pharmacopœia may be induced to extend the list of granulated, effervescent salts, and, if possible, establish uniform or standard formulæ for carbonated and other mineral waters, both natural and artificial, that are now so largely used by the profession and the public.

218 South Sixteenth Street.

AN EPIDEMIC OF MEASLES.

By V. M. Reichard, M.D., Fairplay, Md.

WASHINGTON County, Md., has been invaded from all sides by measles during the past winter. It has been my privilege to study part of this epidemic very closely, and the results are herewith given. For the purpose of a more distinct understanding and the better to draw conclusions I shall divide the epidemic which I studied into three invasions. I shall not give exact dates, but only approximate them.

Invasion I.—About January 15 a little girl, who had been to Washington, D. C., returned home and to her school. The first day in school she was ill; came back next day, but had to be sent home on account of illness. In a day or two she developed the eruption of measles. The school, which is composed of two departments occupying separate rooms under one roof, numbers about a hundred. This child belonged to the primary department. The children of the two departments play together at the intermissions and on the road to and from school.

In from ten days to two weeks there began to be cases of measles among the other children in both rooms. The epidemic continued to spread until every child in the whole school who had never had the disease was affected. I treated the majority of the cases, and knew the history of all the cases, and, with three exceptions, there was not a case of measles in any family some child or children of which did not attend this school. Two of the exceptional cases I treated, and knew them to have been in contact with cases which then (at time of such contact) or soon afterwards had measles. The third exceptional case I did not treat and can say nothing about. In no case was there measles developed in families in which the children were kept away from susceptible children outside of the family. There were several families living beside the road along which a majority of the school passed evening and morning. None of the children were affected, and have not yet contracted the disease. I went among these children while very busily engaged with cases, some of a most virulent type, and no child was in any instance inoculated in that way.

Invasion II.—This was the most instructive. The teacher of the advanced school was taken ill, and was reported to have pneumonia. His brother (who lives with his mother and several younger children in another school district, about three miles from the infected school) came to see him in a few days, and found him in the height of the eruptive stage. He stayed an hour or two, returned home, and in just ten days the eruption came out. Between the dates of the visit and the appearance of the eruption a younger brother and sister, who had never had measles, attended their

school regularly. Upon the appearance of the disease in the young man both the children were kept out of school. The eruption came out on the young man on Sunday, so there were several days from the time the children were out of school before the young man was in the eruption. These two children had measles about ten days later, and the disease went regularly through the school, as it did in the first instance. These children evidently inoculated the school while they were incubating the disease, for this was the only possible way in which the disease could have been brought into the school. The epidemic came about thus: The teacher inoculated the brother, and while the latter was incubating the disease he inoculated the brother and sister, and they the school, as stated above.

Invasion III.—A colored boy living in my family contracted measles in Invasion I., went to his home, several miles off, and inoculated his younger brothers and sisters. An older brother, living in another school district, thinking he had had the measles in infancy, went home a number of times to see about the sick children. Suspecting nothing, he returned to his employer, and for several weeks continued to associate with children of his own color living near by. At last, however, he went down with the disease, and soon after the other colored children likewise. The last-mentioned colored people live close to two families of whites, and the children of the three families were frequently together. Soon the white children began to get sick, until all the unprotected had gone through the disease. No child except these mentioned had the disease till some time after. In this invasion, as in No. 2, the first case was the only one which was in actual contact with a case of fully-developed measles, or even the disease in the stage of invasion.

The following conclusions are drawn:

1. Measles are spread by actual contact with the materies morbi.

2. A case in the stage of incubation may inoculate those who are unprotected.

3. It cannot be carried (as usually meant) by a protected person coming from a case of the disease to a susceptible person.

4. It does not spread through the atmosphere.

5. Strict quarantine will prevent. Had the child, when she came from Washington City, been strictly quarantined, the epidemic might have been prevented. In each of the three invasions we have traced all trouble as beginning with a single person.

3

AN EXPERIENCE IN HASHEESH-SMOKING.

By A. M. Fielde, Swatow, China.

THE *hashish* of the Arabs, the *gunjah* of the Hindus, is prepared from a species of hemp, *Cannabis Indica*, grown in a tropical climate. In Siam this plant, called *kang cha*, is cultivated in gardens, and the spikes of minute female flowers densely surrounding a stalk a few inches in length have a general resemblance to those of catmint. They are cut immediately after inflorescence, are slightly dried, and are commonly sold in the market-places at about four cents for a bunch of fifteen stalks. The natives addicted to the habit smoke these flowers in a brass pipe, in which the acrid fumes are forced through water before they reach the mouth. The immediate and temporary effect is exhilaration or delirium; the permanent consequences are yellowness of the eyeballs, pallor and greasiness of the skin, flabbiness of muscle, emaciation, and gradual destruction of mind and body. It is said that those of the European race are less susceptible than are the Asiatics to its elating influence. I have heard of no foreigner in East India who has the hasheesh-habit.

While living in Siam in 1868 I saw many sufferers from this practice, and decided to test upon myself the effect of the narcotic. I was at a small village a day's journey from any other white person, and was able to secure myself against observation or interruption. I extemporized a pipe, and smoked six thimblefuls of the *kang cha*. The smoke was stifling, but I persevered in puffing it until I felt luxuriously quiet. About ten minutes after laying down the pipe, I suddenly became conscious of dual being. My usual self was awake, was aware of all my actual circumstances, was perceiving with clearness and recalling with precision the facts of my commonplace existence. I knew that I was lying on my back in a chamber of a native house, at ten o'clock at night, and was observing with open eyes the details in my familiar surroundings. There was complete continuity of thought, and perfect cognizance of the mental effect of the herb.

My double was standing in an arched and pillared hall, whose walls, furniture, and drapery were all encrusted with tinted gems, that shone with soft and exceeding brilliancy. Such strength and harmony in color, such grace and grandeur in proportions, such intensity and mildness in illumination, the sane

imagination has never conceived. In the midst of this radiance and beauty I was infinitely joyous. Every atom in me quivered in unspeakable spiritual bliss, and I said, "This is the house not made with hands, and I am now in heaven."

Duality presently ceased as suddenly as it began, and then, after a few minutes, returned with a new phase. My muscles, especially those of the eyelids and mouth, twitched spasmodically. My appearance must have been that of one in an epileptic fit; but my mind remained clear, and took note that the muscular contractions were simultaneous with the quackings of some ducks under my window.

My second self was an automatic musical instrument, a complex arrangement of strings and keys, trembling in rapture while sending forth enchanting melody, that resembled sometimes a familiar, sometimes an unknown, tune. The diapason was superb, and every note was a throb of exultation. I took no heed of moments; but when the instrument ceased playing I fell into a deep sleep, followed by a slight lassitude on the following day.

A fortnight afterwards I repeated the experiment in the daytime. Before I had finished smoking I began to respire loudly, and with convulsive gaspings, accompanied with violent but painless involuntary contractions of the muscles. Again I entered upon separate states in consciousness. I was at once awake, asleep, awakening, and falling asleep. As a cord may swing so quickly between two points as to appear to be two different cords, each complete at the limit of the vibration, so I passed with such rapidity from waking to sleeping, and from sleeping to waking, that thought and dream were alike continuous in consciousness. My condition was neither pleasurable nor painful, but was intensely strange and interesting to me. Out of it my dreaming self passed into another state, leaving my waking self awake. My duplicate became a boundless sea, ravishingly cool, utterly free, rising in vast billows under an illimitable sky, and feeling in every drop of every wave the transport of my own pulsations. Then I became a continent, with wide meadows and verdant forests. A breeze swept over me and rustled all my leaves. I felt my vital forces working in every blade of grass and every spreading tree, sending them gently upward. The thrill of growth was in them all, and growth was ecstasy. This ended in profound slumber.

A few days later I smoked the usual quantity of *kang cha*, with no noticeable effect. Whether I made use of a stalk in which the resin had not formed, or whether I was, from some occult cause, invincible to its influence, I am unable to guess.

A month afterwards, sitting at a table, pencil in hand, and resolved to fasten upon paper some of the marvellous thoughts that came to me while under this intoxication, and that left only their faint semblance in my memory when the excitation ceased, I smoked twice as much *kang cha* as before. In a few minutes I lost all power to judge of the lapse of time. I walked a few feet to close a door, and seemed to have been millions of years in reaching it. I left the room to quiet a pet dog, and when I returned ages appeared to have rolled away. There was not, however, in my case, that extension of space, as well as of time, which so afflicted Professor Ludlow, the hasheesh-eater of Albany. My room had only its usual length. My mind was exalted by an indescribable increase of consciousness. Thoughts crowded upon me in numbers sufficient, could they have been recorded, to have filled the world with new books. The causes of clairvoyance, hypnotism, and other pyschic phenomena became temporarily plain to me. I strove to keep the knowledge acquired through this expanded consciousness, but during the eon required for writing a word each thought was swept away by its strong successor, and all passed in a current that I could in no wise control. Meanwhile, I had, not dual, but multiple existence. I was many contemporaries, living in different spheres and countries, with distinct occupations and experiences. The consciousness of each was included in my consciousness, and each was myself. Possibly as I had, in dual being, alternated between dreaming and waking with such swiftness as to make continuance in each seem to be perpetual, so I now passed from dream to dream with such speed as to make several distinct dreams seem each to be unbroken. If parallel threads were stretched along the surface of a cylinder, and a point were made to revolve around the cylinder transversely, while it was at the same time slightly projected along the threads, the spiral path followed by the point would form a close coil, touching every one of the threads at every point successively. If the threads represented lives and the flying point my consciousness, the latter might thus touch and recognize all that was in the former. So my consciousness seemed to speed with a velocity greater than that of light through an eternity of time, and to include and apprehend each of the lives

that had become mine. The velocity of revolution was so great that no appreciable interval lay between my passing from one life to the same again, and so each life seemed continuous in my consciousness. No one of my various lives was more impressive than the others, though each was at the time as real to me as my present one now is; and when, after a long sleep, I awoke with only my usual limited powers, I could recall the full story of no one of my multiples. A page that I had written during the intoxication contained only parts of words, and words having little grammatical relationship to one another. The only important sentence having a subject and predicate on the same topic was this, "Spiritualism comprehended."

Forewarned by the frightful ruin wrought in others by the hasheesh-habit, I had resolved beforehand that I would limit my experiments to three. These having been successfully made, I never again smoked *kang cha*, and during the years that have since elapsed I have thought with increasing horror of the danger I then incurred. During many years thereafter, drudgery or monotony always made me, unwisely, meditate on this beatification, and then, wisely, on its accompanying perdition.

I have now written, from the notes I made twenty years ago, because my experience, here truly though faintly set forth, may add something to the data from which the problem of consciousness is to be studied and solved.

SWATOW, CHINA, April, 1888.

CARBONIC ACID IN THE TREATMENT OF DYSPNŒA.

The therapeutic employment of carbon dioxide in the treatment of dyspnœa was suggested by the experiments of Brown-Séquard as to the inhibitory effects produced by the insufflation of a current of this gas upon the larynx. M. WEILL, at a recent meeting of the French Académie des Sciences (*La Progrès Médical*, No. 10, 1888), reported the results that he had obtained through the inhalation of this gas in amounts varying from two to four quarts at each session. He has found that it never produces any unpleasant results, whether immediate or remote, but it has always produced great relief of dyspnœa, which is not only instantly accomplished, but whose result is durable. The patients which he had treated in this manner were tuberculous cases, subject to attacks of intense dyspnœa and cardiac palpitation. When the gas is inhaled at the moment of a paroxysm the cough is arrested and the oppression and palpitation cease. In inhalations made between the attacks there is first the effect analogous to the preceding, the patient breathing more freely, while there is, further, the preventive action on the paroxysms, which gradually diminish in frequency and duration. The author further states that dyspnœa in cases of emphysema, when complicated by albuminuria, has yielded to the same treatment. Further, he states that in all cases there is produced at the end of inhalation an abolition of the reflex sensibility of the pharynx and larynx which may be utilized in the same manner as that produced by cocaine. At first sight this method of treating dyspnœa would seem entirely illogical. The indications would appear to be to supply oxygen to the blood and favor the removal of carbon dioxide. If the author's statements are correct, we presume that they can be accomplished only through the powerful stimulation of the respiratory centre by means of this gas. Further experiments, it is needless to say, are necessary to confirm the author's claims.

SUBCUTANEOUS INJECTIONS OF QUININE.

For preparations to be suitable for subcutaneous injection they should be soluble in water, their solutions should be permanent, and injections should be free from pain, and not lead to the production of any local reaction. As yet it has been impossible to produce a solution of any quinine salt which will fulfil these indications. DR. BEUERMANN claims (*Wiener Med. Blätter*, No. 15, 1888) that such a preparation is found in the neutral muriate of quinine. This neutral salt is made by dissolving twenty parts basic muriate of quinine in five parts of pure hydrochloric acid and fifteen parts of distilled water, warming gently and filtering the solution. A Pravatz syringeful of this solution will contain about twelve grains of the neutral hydrochlorate of quinine. Dr. Beuermann states that with this solution he has made over one hundred injections in different patients, without producing any pain from the injection or leading to any disagreeable complications. In a series of typhoid patients, who twice daily received the above injections, there was produced a characteristic reduction of temperature without any cerebral complications, such as dizziness, ringing in the ears, and the like. It was also similarly favorably employed in cases of rheumatism, sciatica, and other forms of neuralgia.

The Therapeutic Gazette

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Medical Publisher, Box 470,
DETROIT, MICH.
Philadelphia, 714 Filbert Street.

SUBSCRIPTION RATES FOR 1888.

(Journal increased to 72 pages.)

THERAPEUTIC GAZETTE (postage included).....$2.00
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Price to Foreign Subscribers direct (postage included) $2.50 (10 shillings). English postage stamps received on remittances.

Editorial communications should be addressed 1925 Chestnut Street, Philadelphia. Articles intended for the Original Department of the GAZETTE will be accepted only with the understanding that they are contributed to it exclusively.

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Leading Articles.

NERIUM ODORUM, OR OLEANDER.

IT has long been known that the ordinary oleander, or *Nerium odorum*, is a poisonous plant, and it is asserted that almost from time immemorial the root has been employed in some portions of Southern Europe for the purpose of destroying rats. Cases of poisoning of the human being by it have been infrequent, but have occurred. In the *Journ. de Chim. Méd.*, 1843, Professor Richard gives an account of the poisoning of a troop of French soldiers as the result of eating meats which had been roasted before an open fire composed of oleander blossoms. Seven died and five others were dangerously sick. According to M. Julien Larue du Barry, in 1841, five French soldiers in Algeria ate food which had been cooked with the wood of the oleander. Three hours afterwards they were all taken to the hospital in a condition of poisoning. The symptoms were dilatation of the pupil, vomiting, frequent cries, apparently the result of abdominal pain, convulsive movements of the limbs, vertigo, and in two cases insensibility. All recovered.

In 1859 (*Ztschr. d. k. k. Gesellsch. d. Aerzte zu Wien*, 1859 xv. 690, 785, 801), Dr. Kurzak published quite a long article upon the poison, in which he cites a number of cases. In one of these $1\frac{1}{10}$ gramme (16½ grs.) of the extract is said to have produced violent vomiting and cold sweats, fainting, and other symptoms; in another $5\frac{1}{2}$ grammes (78 grs.) of the extract caused death. At the autopsy the blood was found dark and imperfectly coagulable, while there was much injection and inflammation of the gastro-intestinal mucous membrane. In still another case, a child 3½ years old swallowed two of its little handfuls of the blossoms. In ten minutes restlessness came on, followed almost immediately by vomiting and apparent recovery of the normal condition. Some hours afterwards the boy was put to bed, and when, still later, his father went to him he found him unconscious, motionless, excessively pale, with very small (?) pupils and cold extremities. The child remained for some hours in a condition of unconsciousness with an intermittent pulse, but finally recovered. In these various cases the symptoms are stated so imperfectly that they throw little or no light upon the action of the drug. More recently better observed cases have been reported, the most satisfactory being that recorded by Dr. C. Sibthorpe (*Indian Med. Gaz.*, 1881): the case of an adult Hindoo who took the root of the *Nerium odorum* in unknown amount for the purpose of suicide. Before going to the hospital he had vomited. At the time of the entrance the pupils were dilated and fixed, the pulse small, very slow,—36 per minute,—the respiration unaffected, the skin normal, the gait staggering, the mental condition dazed; two hours later epileptiform convulsions came on, the temperature fell in the axilla to 97.4, and semi-coma developed. After this violent convulsions similar to those of hystero-epilepsy occurred about every half-hour, lasting, each, one and a half minutes. The temperature rose to 101, the pulse to 120. Twelve hours later the patient was still semi-unconscious, the pulse slow,—40 a minute,—the respiration 18, the temperature 98. Thirty-six hours afterwards the pulse was still 40 per minute. Five days afterwards the pulse was 44 per minute, and the patient showed evidences of mild mania, in restlessness, singing, etc., and said that he had got a god in his abdomen and wanted a piece of glass to cut him out. He finally recovered. In a case reported by Dr. D. Murray (*Indian Med. Gaz.*, 1887, p. 389), an infusion made from four ounces of the ole-

ander-root was taken at eight o'clock in the morning. In about an hour the man was seized with vomiting and severe cramps in the abdomen and extremities. About an hour later he became insensible, but was first seen by the doctor near 4 P.M.; he was then unconscious, with cold, clammy skin, weak, thready pulse, stiffness of the jaw muscle, and rigid fingers. There were also frequent convulsive spasms. He was under treatment for two nights and one day, when he was removed to his home still unconscious, with increasing collapse. He died five days after taking the poison.

It has been asserted that the oleander is capable of acting as a violent local irritant, and Dr. J. A. Wessinger attributes an extensive eruption on the face, with blebs and large papules, accompanied by intolerable itching and burning, to the local effect of the oleander-bush (*Detroit Lancet*, 1882). At present it is not clear, however, that the drug has such influence.

Animals have occasionally been accidentally poisoned by oleander. Thus Dr. Kohlmann gives an account of a cow and two goats which were given leaves from two oleanders along with other food. Both animals were affected with coldness of the nose and extremities, marked tremors in the posterior extremities, and cramp-like contractions of all the muscles. The goat finally passed into a general paralytic condition, and died about eleven hours after feeding. Twenty-four hours after feeding the cow also died paralyzed (*Centralbl. f. Klin. Med.*, vol. i. 161).

Orfila made experiments upon dogs with the aqueous extract of the leaves of the oleander, and found it to be locally irritant and an active general poison whether thrown into the stomach or into the face, especially influencing the nerve-centres and causing stupefaction with paralysis, and in most cases vomiting. He noted that immediately after death the heart was usually found in a condition of rigid contraction. The first person, however, to make the experiments with oleander according to the modern method was M. E. Pelikan (*Compt.-Rend.*, 1866, p. 239). He found that in the frog the extract of oleander causes immediate increase in the number of the heart-beats, followed after a little by slowing of the cardiac movements, and later by irregularity of contraction, ending in systolic arrest of the ventricles at a time when the auricles continue to beat and the frog is still able to jump about freely. Pelikan's experiments upon dogs have not, we believe, been published in detail, but he states that they led him to the conclusion that the oleander acts in the mammal upon the heart in the same way as does digitalis. He also convinced himself that the active principle was a yellow resinous principle insoluble in water, easily soluble in amylic alcohol and chloroform, previously discovered by M. Latour (*Journ. de Pharm.*, t. xxxii. p. 32).

M. Leukowski claims to have discovered (*Journ. de Pharm.* 3d series, vol. xlvi. p. 397) two alkaloids,—one named pseudo-curarine and the other oleandrine.

In the *Archiv für Exper. Path. und Pharm.*, 1883, vol. xvi. 149, Professor Schmiedeberg published the result of an elaborate chemical study of the oleander leaf. He found that the leaf contains two active substances, to one of which he gave the name neriin. He believes it to be identical with or very closely allied to digitalein. The second substance, oleandrine, had been previously described by Leukowski and by Betelli. Schmiedeberg also obtained from African leaves another glucoside, neriantin, which he surmises to be an educt from oleandrine. Schmiedeberg found oleandrine to be a very powerful cardiac poison, .25 milligramme being sufficient to cause systolic arrest of the frog's heart. The glucoside neriantin was not able to arrest the heart of the frog, although it had some influence upon it,—possibly, as Schmiedeberg surmises, through contaminating oleandrine.

Very recently (*Bull. de Thérap.*, May 15, 1888) a partial study of the physiological action of oleander has been made by Dr. Pouloux. He has found that in doses of 5 centigrammes (¾ gr.) the extract produces in the frog paralysis and death in from thirty-five to forty minutes, that the ventricle is thrown into a state of tetanus, so that the diastole is incomplete at a time when the number of cardiac beats is neither augmented nor diminished, and that in five minutes after the injection the tetanus of the ventricle is complete, the auricles continuing to contract over a considerable length of time. The mortal dose for the rabbit is about 50 centigrammes (7½ grs.) of the hydroalcoholic extract, death occurring usually in about forty minutes. The heart continued to beat in all cases some minutes after death, but the aorta was found full of blood, the venous system engorged, and the movements of the heart exceedingly feeble; so that the death was attributed by Dr. Pouloux to the cardiac action of the drug.

In the above paragraphs have been summed up all the knowledge that is obtainable in regard to the action of neriantin upon the ani-

mal organism. It appears to show that the drug really does belong to the digitalis group of poisons, but before our knowledge can be considered at all definite it is essential that a much wider series of experiments be made. Under the control of Dujardin-Beaumetz, Dr. Pouloux has made a few studies of the influence of oleander in cases of heart-disease. He affirms that under its action the beat of the failing heart has become regular and the filiform, imperceptible pulse full and hard. In several of the cases there has been marked increase of the urinary secretion, and in some the disappearance of wide-spread œdema. He administered the extract in pill form in doses of 5 centigrammes.

SULPHONAL, THE NEW HYPNOTIC.

SINCE our last issue several articles have appeared on the action of the new hypnotic, sulphonal. Dr. Rabbas, the physician of the Insane Asylum in Marbourg (*Berlin. Klin. Wochen.*, No. xvii., 1888), employed this remedy, which was furnished to him by Professor Kast, over two hundred and twenty times in twenty-seven different cases of the most varied affections. His results led to the following conclusions :

That sulphonal is an hypnotic which, in doses of from 30 to 45 grains, is more certain and acts better than amylene hydrate and paraldehyde in larger doses. Even in persons who are accustomed to narcotics its action is successful, and is in addition preferable to both the preceding hypnotics in taste and odor. Chloral hydrate is more rapid in the production of sleep, but its effects are not as lasting. He states that single doses of from 30 to 45 grains in cases of excitement have produced a good action, while prolonged employment does not necessitate an increase in the dose. Ordinarily sleep occurs within half an hour, though sometimes not until after one or two hours, and is usually of six to eight hours' duration, or maybe longer. Its action is gradual, and the sleep produced entirely similar to normal sleep. Larger doses of 60 grains, varying, at short intervals, with smaller doses of from 30 to 45 grains, produce no hurtful effects whatever, and even prolonged administration of this drug is claimed by Rabbas to produce no evil after-effects. Appetite, digestion, respiration, and action of the heart are in no wise affected. In one case only vomiting and diarrhœa followed its employment, but were by no means positively attributable to this drug. Its freedom from action on the heart is a great advantage over chloral, but as to whether it is as marked an hypnotic as is claimed remains to be seen. Unfortunately, testimony is already making its appearance which contradicts these enthusiastic statements of Kast and Rabbas.

Dr. James C. Wilson and Dr. R. Hutchinson report in the *Med. and Surg. Rep.* for June 9, 1888, that they tested it in a few cases of the severer forms of insomnia and maniacal excitement. This plan was adopted to avoid, in the first place, the errors incident to the limited number of observations in cases of mild, and therefore often intermittent, insomnia ; and, in the second place, to aid in determining the range of cases in which the drug may be investigated in the future. The result, in view of the reports of Kast and Rabbas, already laid before the readers of the GAZETTE, was a disappointment. It has, however, the peculiar value of negative results in general, and is for that reason referred to. As a control test, these authors gave 25 grains of sulphonal to a healthy male adult upon retiring with no more effect than his accustomed normal peaceful repose, but with no ill-effects afterwards. Four cases of sleeplessness from various mental troubles received from 25 to 55 grains of sulphonal, but with no appreciable effect in overcoming the insomnia. These authors' experience is, therefore, very different from the remarkably successful results which have been claimed by Kast and Rabbas to follow the use of this remedy.

Mr. Earnest Lovegrove (*Brit. Med. Jour.*, May 26, 1888) also has failed to obtain satisfactory results ; and, in fact, states that the effect upon the patients was very discouraging. For several hours after taking the drug no appreciable effect could be observed, but during the greater part of the following day there was extreme drowsiness, with considerable cyanosis. Mr. Lovegrove was also unable to confirm the statement, which we have already published, as to the solubility of sulphonal, and states that it requires considerably more than from eighteen to twenty parts of boiling water to dissolve it, and that it crystallizes out on cooling, while he was also unable to dissolve it in one hundred parts of water at the ordinary temperature. According to Mr. Lovegrove, the best mode of administering sulphonal is to mix it with compound tragacanth powder and water.

A paper on this subject has also appeared by Dr. Wendt in the *Medical Record*, June 2, 1888; but this, as well as the continuation of Nevinny's article referred to in our last issue, is simply the summary of the observations of Rabbas and Kast, and contains no new matter.

Sulphonal is extremely resisting to most chemical agents, so that a characteristic test for its recognition is as yet wanting. G. Vulpius states (*Pharmaceutische Post* for June 3, 1888) that when about equal parts of sulphonal and potassium cyanide are rubbed together and heated in a dry test-cylinder, the glass rapidly fills with a thick mist, with the development of the unsupportable odor of mercaptan. Together with this test, the presence of sulphur may be simultaneously recognized. If the residue is suspended in hot water, and tested with a little diluted solution of ferric chloride, the red color formed by ferrocyanide of potassium with iron salts is at once produced.

In the use of this test, Herr Ritsert, however, objects to the use of potassium cyanide, and proposes pyrogallic or gallic acid as a non-poisonous substitute (*Pharm. Zeit.*, May 21, p. 312). Herr Ritsert heats one or two decigrammes of sulphonal in a dry test-tube until, at about 280° C., the water-clear fused mass begins to give off bubbles of gas. From .05 to .1 gramme of pyrogallic or gallic acid is then added, which causes the clear liquid to become brown and evolve the characteristic mercaptan vapor.

According to Dr. Scholvien (*Pharm. Zeit.*, May 30, p. 320), 1 part of sulphonal requires for solution 15 parts of boiling water, 500 parts of water at 15° C., 133 parts of ether at 15° C., 2 parts of boiling alcohol, 65 parts of alcohol at 15° C., or 110 parts of fifty per cent. alcohol at 15° C. After recrystallization of commercial sulphonal three times from fifty per cent. alcohol, absolute alcohol, ether, chloroform, and benzole, the melting-point proved to be uniformly at 125.5° C., and Dr. Scholvien thinks, therefore, that this character may be taken as an indication of a pure product. Dr. Kast, who introduced sulphonal, reports that he has found an alleged disulphone, ethylidendiethylsulphone, to act as a narcotic in the same doses as sulphonal, and probably in less time, but it appears to produce disturbance of the heart's action. A number of other disulphones have been experimented with, but proved to be inactive or objectionable on account of the symptoms produced.

THE ANÆSTHETIC VALUE OF ERYTHROPHLÆINE.

THE position of erythrophlæine as an anæsthetic is not yet thoroughly established, nearly every journal containing statements both for and antagonistic to its acceptance as a recognized substitute for cocaine. The most recent contribution to this discussion was made by Dr. A. Onodi in the *Deutsche Med. Zeitung*, No. 33, 1888. He has found from experiments made on rabbits that the instillation of 2 drops of a one-twentieth to a one-fifth per cent. solution produced within fourteen to twenty minutes a gradual progressive anæsthesia of the cornea and sclerotic, lasting for about four hours, the borders of the eyelids still, however, being very sensitive. About 15 drops of the above solution was injected into the upper eyelid, and in about three-quarters of an hour temporary anæsthesia of the anterior two-thirds of the lid was developed, while the remaining portion still remained sensitive. The application of 2 or 3 drops to the nasal chambers permitted the passage of a sound through the nose on the side of the application without any reaction, while sneezing resulted from a similar procedure on the opposite side. In man the injection of 2 drops of a one-fifteenth to a one-fifth per cent. solution between the under lip and the gum, or pencilling the tip of the tongue or the gum, reduced the painful sensibility of these localities considerably, but the feeling as if the gum was swollen was produced. In a boy with catarrhal conjunctivitis, anæsthesia was produced sixteen minutes after the instillation of 2 drops of a one-tenth of one per cent. solution. The patient, however, complained of burning, headache, and dizziness, and fainted after about twenty minutes. Thirty minutes later full anæsthesia still remained. In a man 2 drops of a one-fifth per cent. solution injected into the healthy eye produced complete anæsthesia of the cornea and sclerotic, with marked injection of the conjunctiva, burning, headache, dizziness, the latter disappearing in about three-quarters of an hour. Four drops of a one-fifth per cent. solution injected into the orifice of the urethra produced no effect whatever.

Ebstein (*Centralbl. f. Klin. Med.*, 1888, No. ix.) first experimented on himself, injecting subcutaneously 2 drops of a one-twentieth to one-fifth per cent. solution into the left forearm. These weak solutions proved themselves perfectly inactive. Through the em-

ployment of a one per cent. solution the sensibility of a given locality was reduced, but full anæsthesia was not produced, since tactile sensation still remained. The employment of the injections was accompanied by severe unpleasant accompanying symptoms, and especially by the occurrence of pain on moving of the part at which the injection had been made. This author also used erythrophlæine as an addition to mercurial salts to reduce the pain accompanying the injections of the latter, but his results were not satisfactory. In two cases there was slight anæsthesia produced, but this soon gave place to a much greater sensation of pain than if the erythrophlæine had been omitted. It would appear, therefore, from his results that erythrophlæine in this respect falls far below cocaine.

Löwenhardt (*Berlin Klin. Wochenschr.*, 1888, No. x.) has experimented on rabbits, injecting a few drops of a one per cent. solution into the ear. In a few moments there was great swelling at the point of injection, and twenty-five minutes later marked anæsthesia was produced and persisted for several hours. On the next day the epidermis at the point of injection was raised up in the form of a blister, the skin was œdematous, and in many cases the injections were followed by sloughing. Instillation in the eye was accompanied by phenomena of irritation, marked injection of the conjunctiva, and cloudiness of the cornea : persistent anæsthesia of the cornea and conjunctiva was, however, produced. Experiments as to the subcutaneous injection of erythrophlæine in one per cent. solution for the production of anæsthesia in minor surgical operations was not accompanied by success. The point of injection invariably became œdematous, but although its sensibility was depressed it was never totally abolished. The patients also complained of pain and burning at the point of injection. Application of a one per cent. solution to the tongue for the removal of a papilloma of that organ was not successful in relieving the painful sensations of the patient during the operation.

Lipp (*Wiener Med. Wochenschr.*, No. xi., 1888) has employed one-fifth to one per cent. solutions, usually administering them subcutaneously. One per cent. solutions called forth slowing of the pulse, analogous to that produced by digitalis, while doses of $\frac{1}{10}$ grain produced secondary analgesia. Mannas (*Semaine Médicale*, p. 78, 1888) comes to the following conclusions : As a local anæsthetic for the eye erythrophlæine falls but little beneath cocaine, but although anæsthetic action persists for some time, the inflammation and severe pain which its employment entails unfits it for any operation on the eye.

THE ADMINISTRATION OF SALOL TO CHILDREN.

DEMME reports in the *Wiener Med. Blätter*, No. 51, 1887, a number of interesting investigations made as to the action of salol on children. He employed this drug in four cases of articular rheumatism, two cases of acute endo- and pericarditis with but slight rheumatic complication, two cases of vesical catarrh, and as an external dressing in two cases of serious burns. Two of the patients with acute rheumatic polyarthritis were boys of 8 and 13 years of age. Both of these, as long as there was fever, swelling, and painfulness in the joints, received doses of 15 grains of salol at intervals of two or three hours until forty-five or sixty grains had been given. In one of these cases salol was given for five and the other for seven days. With the reduction of the fever and of the joint-affection the amounts of salol were reduced to thirty grains in a day, and as convalescence was established but fifteen grains were given. Although in these cases the effects of salol were not astonishingly prompt, yet, on the other hand, there was no relapse of the rheumatic process ; so that the duration of the disease, in all, was only from fourteen to sixteen days. In the third of the patients suffering from articular rheumatism, that of a girl of 7 years of age, the temperature was reduced from 39.8° C. to 37.2° within forty-eight hours after the administration of seventy-five grains of salol in divided doses, and was accompanied by the reduction of the painful swelling of the foot, right knee, and left elbow-joint. Here also no relapse occurred. The fourth of the cases of rheumatic polyarthritis was that of a girl, 9 years of age, in whom the result was less satisfactory. In the first place, considerable difficulty was met with in the administration of the drug. The administration of 15 grains, whether in emulsion or capsules, produced vomiting within ten to fifteen minutes. After the introduction of 30 grains of salol in egg emulsion as an enema, there occurred within eight or ten hours an eruption of urticaria over the entire body, while no improvement was observed in either the fever or the joint-affection. The use of

the remedy was therefore suspended, and sodium salicylate, in doses of 45 grains daily, substituted. This substitute was retained, and reduced fever and swelling and pain in the joints, but it likewise led to the production of an eruption similar to that caused by salol. For eight days after the employment of the sodium salicylate the child was perfectly convalescent, but there was then a relapse of the disease, with the localization of the rheumatism in the right shoulder-joint and metatarsal joints of the left foot. Antipyrin was then given; and this was well borne, and cure resulted in four days, after seventy-five grains in all had been given. In the cases of endo- and pericarditis the action of salol was satisfactory only when frequency of the heart's pulsation had been reduced by appropriate doses of digitalis. In the two cases of vesical catarrh the salol was well borne. One of these was of special interest, as it was a case of acute cystitis from the toxic action of cantharides. At first salol was given in doses of 24 grains, then of 31 grains, and then of 39 grains daily. On the second day the alkalinity of the urine disappeared, and diuresis was more abundant and painless. The amount of pus and mucus in the urine decreased, and the boy was regarded as cured. Towards the end of the administration of the salol a greenish-brown coloration of the urine occurred similar to that produced by carbolic acid.

NOTWITHSTANDING this result of Demme, we cannot believe that salol is destined to a high career in practical internal medicines, unless, indeed, it be as a remedy in diseases of the bladder. As our readers no doubt know, it yields when broken up by the pancreatic juice about sixty-four per cent. of saliclyic acid and thirty-six per cent. of phenol. It cannot affect the system differently from the two substances which it contains, and neither clinical experience nor any scientific reasoning indicates that it has peculiar virtues, and the claim that it is incapable to produce untoward symptoms, and that it agrees better with the stomach than any other salicylic preparation is doubtfully sustained. It is, however, less disagreeable to take than many other preparations of salicylic acid. But in a considerable experience we have been convinced that it is less prompt and less certain in its influence, especially in rheumatic cases. Bethol, although it contains ten per cent. less of salicylic acid than does salol, is probably not less efficient than salol, and is less poisonous, because it has in it the inert naphtholol instead of carbolic acid.

ANTIPYRIN IN THE TREATMENT OF RHEUMATIC CHOREA.

IT is a very difficult for a practitioner to form an opinion as to the value of a new remedy. In many cases experience has proved that the eulogistic claims of introducers of such remedies have to be greatly discounted before a correct estimate can be formed. At present antipyrin is the fashion. But even now it is difficult to correctly estimate its value as an antiseptic, analgesic, antipyretic, and antirheumatic. We have already alluded to the employment of antipyrin by Legroux in the treatment of chorea. In an article published in *Le France Médical*, No. 14, 1888, Dr. B. Boussi confirms Legroux's statement as to the value of this drug in chorea, and would call further attention to this employment of antipyrin. Dr. Boussi states that he was called to see a child 8 years of age, the son of a workman, whom he found in a state of high fever, complaining of pain in the throat and headache. The preceding day he had an eruption, which had, however, disappeared when seen by Dr. Boussi. The probable diagnosis of scarlatina was made, but a few days later the case developed into an acute articular rheumatism, accompanied by endocarditis. Thirty grains of salicylate of sodium were given daily, and cure resulted in eight or ten days. At this time a pronounced desquamation confirmed the diagnosis of scarlatina. Five or six days later, after the cure of the rheumatism, the child commenced to suffer from disordered movements, which became more and more violent, until in ten days chorea of the gravest character was developed. Treatment was then commenced with thirty grains of antipyrin, given in four doses daily in a little sugar and water. On the very next day improvement was evident, sleep was possible without disturbance by choreic movements, and in two days, after the administration of sixty grains of antipyrin, the choreiform movements had almost entirely disappeared. In all, the treatment had lasted but eight days, during which time the chorea was practically cured, having taken in all but little more than half an ounce of antipyrin. Dr. Boussi's results encourage an extended trial of antipyrin in chorea.

THE USE OF COLD IN DIARRHŒAS OF CHILDREN DURING THE HOT WEATHER.

AS the heated term is upon us, we take the liberty of calling the attention of our readers to a practice concerning which we have frequently written, but which we do not think obtains upon the profession as largely as it ought to. Any one who watches the mortality lists of our large cities knows that any marked ascent of the average heat record of the thermometer is accompanied by a corresponding rise in the mortality list; also that the rise is chiefly made up of infantile deaths, such deaths in turn being in great part the result of some form in diarrhœa. Whether these cases are called cholera infantum, or summer diarrhœa, or enteritis, or colitis, we believe that they are in great part the direct result of overheating of the body, and that they are to be best combated by the use of the cold bath. In all such cases the physician should take the temperature of the little patient, and if, as is generally the case, the bodily heat is distinctly above normal, systematic cold bathing should be enforced. It may be necessary to give the cold bath every two hours; it may only be required three times in the twenty-four hours. At first the child usually resists the bath violently, and the prejudices of the mother often are like the wall of a fortification; but, whenever we have persevered, the results have been so marked as not only to rapidly overcome the prejudice of the mother, but also to teach the child itself the value of the bath and cause the outcries and resistance on its part to cease entirely. We wish that this treatment would be fairly tried by our readers, and reports made thereon through our columns.

THE TREATMENT OF MIGRAINE.

WE have already laid before our readers the statements as to the physiological action of cysticine, and we now recall their attention to the use of this substance in the treatment of migraine. Kraepelin, in the *Neurol. Centralbl.*, VII. i., 1888, states that he has employed this substance in two cases of paralytic migraine. At the very commencement of the attack he injects from $\frac{1}{20}$ to $\frac{1}{12}$ of a grain under the skin, and he states that this treatment is followed by almost immediate disappearance of the attack. On the other hand, in the condition which he describes as "spastic migraine," cysticine, so far from causing improvement, aggravated the affection. In this connection it is worthy of notice that Haig (*Brit. Med. Journ.*, January, 1888) attributes migraine to an excess of uric acid in the blood, and it is to diminish this that he makes use of the diuretic properties of the mineral acids. The condition of this treatment depends, according to him, upon the quantity of acid which is prescribed, and he gives from 48 to 64 minims of the officinal nitro-muriatic acid in a large glass of water. The patient takes this solution in two different parts, at intervals of thirty or forty minutes. He claims that but an hour or an hour and a half will pass before the symptoms of migraine disappear. If the urine preserves its alkalinity a second dose should be given, or an equivalent quantity of citric acid in the form of lemonade. As an auxiliary to this treatment Haig insists upon the abstention from meat and beer. He attributes the activity of the various remedies which have been used in the treatment of this affection to the augmentation in the amount of uric acid eliminated as well as to a diminution in its production.

No opportunity has yet been afforded us of testing these various assertions, but we have noted that antipyrin frequently affords most excellent results in migraine, and also not rarely fails to give relief. Why the difference is beyond our comprehension, but we have thought that the action is usually most happy when the migraine approaches most nearly in its symptoms a true nerve-storm. This is one of those cases in which the actual testing of the remedy in the individual case can alone decide its value for the individual case.

NEXT to the sewing-machine the type-writer seems to come as a successful domestic instrument, although, perhaps, it ought to be termed an office instrument. A suggestion which we have recently met with in the *Western Druggist* strikes us as so apt that we give it a little wider circulation. It is that the apothecary should write his directions for his bottle with type-writing rather than with pen and ink. In some of our large drug-stores the clerks are good chirographers, but the type-writer has the advantage of always inditing in the same hand and always being extremely legible.

THE THERAPEUTIC GAZETTE does not often devote space to obituary notices, but we are inclined to record the death of Dr. Moy Toy Yon, pioneer Chinese pharmacist east of the Rocky Mountains, who recently departed this life in Chicago, after having laboriously filled for many years the functions of physician, pharmacist, and laundryman.

Reports on Therapeutic Progress.

THE USE OF DRUGS BY NURSES, AND THEIR INFLUENCE ON THE INFANT CONVEYED BY THE MILK.

The subject has been forcibly brought under the notice of PROFESSOR FEHLING by the mysterious death of an infant from an overdose of morphine which seems to have been conveyed from the nurse through the milk (*Med. Press*, May 9, 1888). For some slight ailment a small dose of morphine had been prescribed, and the nurse noticed no physiological effects from it to give the slightest suspicion to the attendant. From the importance of the case the question was raised, What quantity of medicine could a nurse use without injury to the child? For the guidance of men in busy practice the author undertook the task of experimenting with different substances, in the hope of arriving at some approximate limit for practical use, although this must necessarily be accepted as very arbitrary, from the difficulty of measuring the power of absorption of any drug, its change in the circulation, and its freedom of elimination by any of the other secreting and excreting organs. All soluble agents, he finds, pass from the circulation through the milk to the child.

The salicylate of sodium, which greatly increases the flow of milk, was found to become dangerous to the infant after a dose of 45 grains.

In the case of iodide of potassium being used, it was notably observed that it was much longer in being separated from the blood by the milk glands, and continued to be secreted by them twenty-four hours after the use of the drug, as the iodide of potassium could be easily separated from the nurse's milk after this time had elapsed. He concludes that 3 grains may be used daily without any bad effects on the child.

But with the ferrocyanide of potassium, it is strange to note, his results are quite negative on the child; even after doses of 30 grains had been given, no trace of its presence could be found in the urine of the infant, while, at the same time, its presence in the urine of the mother was distinctly observed. From this we infer that the glands of the breast have no affinity for its secretion, and this supports the view that one gland is more ready to eliminate one product than another from the circulation. But, stranger still, he found that iodoform passed easier from the circulation of the mother into the child than from the child itself by its own circulation. He found that if the wounds of the mother after confinement were dressed with iodoform, the urine of the child would be found to be highly charged with the drug, while that of the mother had no appearance of the drug.

This Fehling thinks is proof that iodoform is decomposed in the blood, and passes off easily by the lactic glands, to the great risk of the infant. On the other hand, if the child's wounds be dressed with the iodoform, no bad effects to the infant will accrue. He found that the navel of the infant was daily dressed with iodoform in the hospital with which he was connected for at least eight days, and no effects of the drug could be observed on the child.

The experiments with the mercurial salts do not encourage the belief that the infant is affected by the drug at all. Yet it is not unlikely that, after a long use of the drug by the nurse, the child may become secondarily affected; but its direct transmission is not perceptible.

In his experiments on the daily food of the nurse, Dr. Fehling thinks that the practitioner should correct the public notion of prohibiting certain food-stuffs, as acids or salads, which are often forbidden. He conducted his experiments with citric acid, mineral acids, and vinegar. As might be expected, no proof of their transmission to the child could be proved, and no disturbance in the general condition of the child was observed. The child during the experiments rested as well as before and after the experiments were performed; its functions of secretion and excretion were normal; while the mother's milk remained alkaline during the experiments, as it was both before and after.

It follows, therefore, that the mother should be allowed to resume her former food as soon as she has recovered from the confinement, not even denying her the salads and saurkraut.

But the most interesting of these experiments to the practitioner is the influence of

narcotics on the infant when transmitted by the mother's milk. From a series of cases, he found that 25 drops of the simple tincture of opium (German Pharm.) could be given without affecting the child. It awoke at regular intervals, two to three hours, and took to the breast, and no constipation was observed. In the same manner cases with morphine were experimented on; but, with the desire to make the experiments more accurate, the subcutaneous injection of a (1 to 30) solution of the alkaloid was used. The child was unaffected when doses of .008, .01, .012, and .02 gramme were given (about $\frac{1}{10}$ to $\frac{3}{10}$ of a grain of morphine). The mother did not sleep over one to two hours after the injection, while the child seemed also to be very little affected by it, as it was not observed to sleep over four or five hours.

He concludes his experiments by saying that the practitioner may safely use, by subcutaneous injection, doses of morphine varying from .01 to .02 gramme without expecting any danger to the child. His experiments with chloral are given in the same way, and are stated at 23 to 45 grains, which may be given with safety. In some of the cases the child was restless and uneasy while sleeping longer than usual. If the breast was withheld for one and a half or two hours after these doses no effects were seen on the child. 15 to 45 grains may be safely given if this precaution be taken in weak children, but two hours' delay is reckoned quite sufficient. The use of atropine, however, as has already been pointed out by Preyer, must be made with great care, as it is easily transmitted to the child by the milk of the mother. The effect of the pharmacopœal dose was very marked on the child. It was used in the form of a one per cent. subcutaneous injection solution, as well as by the mouth. Care is enjoined with the use of this drug, as well as in the case of opium, morphine, and chloral, that the idiosyncrasy of each individual patient be watched, and also that the drug does not accumulate.

Fehling pushes his investigations still farther, and asks, How can we reduce the fever in the case of a mother or nurse when this accident occurs? In one of his earlier contributions on this subject he showed, from experiments, that milk from a fevered mother had no bad influence over the child within certain limits. If the temperature of the mother were very high, and long sustained at 104° F., a corresponding fever curve would soon appear in the child.

He explains this fact by the experiments of Bumm, who found mastitis micrococci in the cellular tissue of the mamma. These microbes were also found in the milk and alimentary canal of the child.

In the septic conditions after confinement, erysipelas, and scarlatina the specific micrococci were to be found as extensively distributed. In these cases he advises the separation of the child from the mother, and artificial means or a nurse applied to nourish the child. But in the case of any other fevers he thinks the child should be kept to the breast as long as the milk is present, and simple means applied to reduce the fever. Where fever is high and the milk becomes injurious to the child the milk soon disappears.

In the concluding portion of his paper he discusses the relationship that exists between the nurse and the child, and thinks that it is improbable that a nurse can impart her disposition or character to the child by the medium of the milk alone, though many diseases are likely to be transmitted, he admits, by this means. He thinks, however, that mothers with any tendency to mental disorders or epilepsy should not suckle their own offspring. If this precaution be not taken, he assumes that the disorder will be transmitted unaltered. This assumption lends some credence to the belief that the early nutrition administered to the child has some influence over the destiny of the child, and leaves it difficult to exclude the possibility of a certain amount of risk that might be transmitted by a nurse. It is condemned as a false notion, however, to suppose that the temperament or corrupt disposition of a nurse can be transmitted to the child in the same manner that disease can be communicated.

When we cannot prove that acquired habits are transmitted from the parents, it is difficult to conceive how the nurse can infuse her moral character into the child by the milk alone.

THE TREATMENT OF KERATITIS IN CHILDREN.

General experience shows that a child convalescent from an eruptive fever, or from an attack of impetigo or scrofulous eczema, suffers from photophobia. Its eyes become reddish, weak, and the eyelids become spasmodically contracted. In such states the examination of the eyes is always difficult, but when the eyes are opened the conjunctiva will

appear red, injected, the cornea discolored; in fact, all the symptoms of keratitis will be present. Of these symptoms the most important is the blepharospasm, which will be nearly always found to be dependent upon a corneal lesion, and will, therefore, demand careful treatment and thorough examination. In a paper on the treatment of children in this condition, published in the *Revue Générale de Clinique et de Thérapeutique*, No. 10, 1888, Dr. A. Trousseau divides the principal varieties of keratitis met with in children into the following classes:

A. Phlyctenular keratitis, which may be vascular or non-vascular.

B. Superficial keratitis.

C. Ulcerous keratitis, which may be superficial, profound, or infectious.

D. Abscess of the cornea.

E. Parenchymatous keratitis.

F. Opacities on the cornea.

A. *Phlyctenular keratitis* is distinguished by the presence of small isolated or confluent bullæ on the cornea. The danger of this affection is the transformation of the blister after breaking into an ulcer or an abscess. To combat this form of keratitis a piece as small as a grain of wheat of the following ointment should be introduced once daily with a small camel's-hair brush into the eye:

Vaseline, gr. lxxv;
Yellow oxide of mercury, gr. iv.

Three times daily compresses should be applied, moistened with a solution of boric acid, sixteen grains to the ounce. A bandage should not be employed, as it tends to augment the blepharospasm. If this latter symptom is, however, very intense, the external angle of the eyelids may be divided by means of a pair of scissors or a galvanic cautery, and this device, according to the author, is applicable in all the varieties of keratitis where this phenomenon is marked. For pain an ointment containing three parts of extract of belladonna to ten of mercurial ointment may be rubbed around the orbit morning and evening. Combined with local treatment, a general antistrumous treatment should be inaugurated, especially by means of cod-liver oil. If there is a tendency to ulceration or to the formation of an abscess, the ointment above mentioned should be replaced by a wash of seven-eighths of a grain of nitrate of pilocarpine to one hundred and sixty drops of water.

B. *Superficial non-vascular keratitis* is characterized by the appearance of small, sharply limited opacities, accompanied by some inflammatory reaction. This likewise may be treated by the yellow oxide of mercury ointment in somewhat smaller quantity, or if this is not well borne, by means of the pilocarpine wash. Warm compresses should be applied four or five times daily of the boric acid solution above mentioned. The vascular form of superficial keratitis, in which blood-vessels appear on the surface of the cornea, should likewise be treated with the yellow oxide of mercury ointment, the proportion of the latter, however, to the vaseline being doubled, while the eye may be washed with a solution of carbolic acid, one part and a half to three hundred of water. This should not, however, be applied on warm compresses. In this form of keratitis it is necessary to determine as to whether the corneal trouble is not due to granular affections of the conjunctiva, in which case the keratitis may be neglected and the conjunctivitis alone treated.

C. *Ulcerating keratitis* is accompanied by lachrymation, photophobia, and extreme pain. It is recognized readily by the loss of substance in the cornea always visible on oblique illumination. This form admits of three varieties,—*first*, superficial ulcers, which succeed sometimes to phlyctenula, and are readily cured; *second*, more profound ulcers, which occasion leucoma and lead occasionally to perforations of the cornea; *third*, infectious ulcers, as in purulent conjunctivitis, which are often accompanied by hypopion and have a tendency to destruction of the cornea. In all these cases the most rigorous antisepsis of the eye is essential. This may be accomplished by maintaining warm compresses of saturated solution of boric acid on the eye; or, in severe cases, washing the eye every hour with a solution of four grains of corrosive sublimate in about an ounce and three-quarters of water. In addition, when the subject is a scrofulous one, cod-liver oil must be given. If the affection is due to purulent conjunctivitis, the conjunctivæ must be cauterized with nitrate of silver, while the lachrymal ducts must be catheterized in cases of dacryocystitis. It is also advisable to instil into the eye three times daily two or three drops of a solution containing seven-eighths of a grain of neutral sulphate of eserine in two and a half drachms of water. But two instillations of this collyrium should be made daily, and an ointment containing one part of finely-powdered iodoform to ten of vaseline should be placed in the eye every night. In grave cases a pledget of antiseptic lint should

be maintained night and day on the eye by means of a compressory bandage, eserine instilled four times daily, and the surface of the ulcer should be touched with the point of a galvano-cautery, while sulphate of quinine should be given internally. In cases of hypopion, to the above treatment puncture of the cornea may be added.

D. *Abscess of the cornea* is recognized by the appearance on this membrane of tints varying from grayish white to pale yellow when the abscess is superficial and localized. Sometimes the pus infiltrates between the different layers of the cornea, and the abscess has the same dangers to the eye as ulcers, and is amenable to the same treatment. One point is, however, worthy of mention,—that whenever spontaneous perforation of the cornea is feared this perforation should be produced with the point of a galvano-cautery, or of a needle heated to a dull red. By this means the situation and extent of the opening are regulated and its dangers diminished.

E. *In parenchymatous keratitis* opacities appear in the cornea, and gray or yellow points, sometimes isolated or uniting over the entire surface of the membrane, cause it to assume a grayish tint. In other cases the cornea is invaded by a large quantity of newly-formed blood-vessels, and then assumes a uniform reddish tint. This affection is apt to last from two months to a year, and severely tries the patience of both the physician and the patient. The treatment should be prolonged, and should consist in the instillation of a drop of atropine solution in the eye, combined with internal treatment, which should be of a supporting character, such as quinine and cod-liver oil, to which, perhaps, may be added iodide of potassium. Eventually the corneal infiltration may be completely absorbed, but in many cases, in spite of the best treatment, the corneal opacity will persist. In such cases the ointment of the yellow oxide, insufflations of calomel powder, and massage practised over the eyelids will promise the best results.

THE TREATMENT OF INTESTINAL OBSTRUCTION.

Dr. Nicholas Senn draws the following conclusions from an elaborate series of papers which he has published in recent numbers of the *Annals of Surgery:*

1. Traumatic stenosis from partial enterectomy and longitudinal suturing of the wound becomes a source of danger from obstruction or perforation in all cases where the lumen of the bowel is reduced more than one-half the size.

2. Longitudinal suturing of wounds on the mesenteric side of the intestine should never be practised, as such a procedure is invariably followed by gangrene and perforation by intercepting the vascular supply to the portion of bowel which corresponds to the mesenteric defect.

3. The immediate cause of gangrene in circular constriction of a loop of intestine is due to obstruction of the venous circulation, and takes place first in the majority of cases at a point most remote from the cause of the obstruction.

4. On the convex surface of the bowel a defect an inch in width, from injury or operation, can be closed by transverse suturing without causing obstruction by flexion. In such cases the stenosis is subsequently corrected by a compensating bulging or dilatation of the mesenteric side of the bowel.

5. Closing a wound of such dimensions on the mesenteric side of the bowel by transverse suturing may give rise to intestinal obstruction by flexion, and to gangrene and perforation by seriously impairing the arterial supply to, and venous return from, the portion of bowel corresponding with the mesenteric defect.

6. Flexion caused by inflammatory and other extrinsic causes gives rise to intestinal obstruction only in case the functional capacity of the flexed portion of the bowel has been impaired or suspended by the causes which have produced the flexion, or by subsequent pathological conditions which have occurred independently of the flexion.

7. As in flexion, a volvulus gives rise to symptoms of obstruction when the causes which have given rise to a rotation upon its axis of a loop of bowel have at the same time produced an impairment or suspension of peristalsis in the portion of bowel which constitutes the volvulus, or when a diminution or suspension of peristalsis follows in consequence of the degree or extent of the rotation.

8. Accumulation of intestinal contents above the seat of invagination is one of the most important factors which prevents spontaneous reduction, and which determines gangrene of the intussusceptum and perforation of the bowel.

9. Spontaneous disinvagination is not more frequent in ascending than descending invagination.

10. The immediate or direct cause of gangrene of the intussusceptum is obstruction to the return of venous blood by constriction at the neck of the intussuscipiens.

11. Ileo-cæcal invagination, when recent, can frequently be reduced by distention of the colon and rectum with water; but this method of reduction must be practised with the greatest caution and gentleness, as overdistention of the colon and rectum is productive of multiple longitudinal lacerations of the peritoneal coat,—an accident which is followed by the gravest consequences.

12. The competency of the ileo-cæcal valve can be overcome only by overdistention of the cæcum, and is effected by a mechanical separation of the margins of the valve; consequently it is imprudent to attempt the treatment of intestinal obstruction beyond the ileo-cæcal region by injections per rectum.

13. Resection of more than six feet of the small intestine in dogs is uniformly fatal; the cause of death in such cases is always attributable to the immediate effects of the trauma.

14. Resection of more than four feet of the small intestine in dogs is incompatible with normal digestion, absorption, and nutrition, and often results in death from marasmus.

15. In cases of extensive intestinal resection the remaining portion of the intestinal tract undergoes compensatory hypertrophy, which macroscopically is apparent by thickening of the intestinal coats and increased vascularization.

16. Physiological exclusion of an extensive portion of the intestinal tract does not impair digestion, absorption, and nutrition as seriously as the removal of a similar portion by resection.

17. Fæcal accumulation does not take place in the excluded portion of the intestinal canal.

18. The excluded portion of the bowel undergoes progressive atrophy.

19. A modification of Jobert's invagination suture, by lining the intussusceptum with a thin, flexible rubber ring, and the substitution of catgut for silk sutures, is preferable to circular enterorrhaphy by the Czerny-Lembert suture.

20. The line of suturing, or neck of intussuscipiens, should be covered by a flap or graft of omentum in all cases of circular resection, as this procedure furnishes an additional protection against perforation.

21. In circular enterorrhaphy the continuity of the peritoneal surface of the ends of the bowel to be united should be procured where the mesentery is detached by uniting the peritoneum with a fine catgut suture before the bowel is sutured, and this modification of the ordinary method furnishes a better security against perforation on the mesenteric side.

22. In cases of complete division of an intestine, if it is deemed advisable not to resort to circular enterorrhaphy, one or both ends of the bowels should be closed by invagination to the depth of an inch, and three stitches of the continued suture embracing only the peritoneal and muscular coats.

23. The formation of a fistulous communication between the bowel, above and below the seat of obstruction, should take the place of resection and circular enterorrhaphy in all cases where it is impossible or impracticable to remove the cause of obstruction, or where, after excision, it would be impossible to restore the continuity of the intestinal canal by suturing, or where the pathological conditions which gave rise to the obstruction do not constitute an intrinsic source of danger.

24. The formation of an artificial anus in the treatment of intestinal obstruction should be practised only in cases where continuity of the intestinal canal cannot be restored by making an intestinal anastomosis.

25. Gastro-enterostomy, jejuno-ileostomy, and ileo-ileostomy should always be made by lateral apposition with partially or completely decalcified perforated bone plates.

26. In making an intestinal anastomosis for obstruction in the cæcum or colon, the communication above and below the seat of obstruction can be established by lateral apposition with perforated approximation plates, or by lateral implantation of the ileum into the colon or rectum.

27. An ileo-colostomy, or ileo-rectostomy by approximation with decalcified, perforated bone plates, or by lateral implantation, should be done in all cases of irreducible ileo-cæcal invagination, where the local signs do not indicate the existence of gangrene or impending perforation.

28. In all cases of impending gangrene or perforation, the invaginated portion should be excised, both ends of the bowel permanently closed, and the continuity of the intestinal canal restored by making an ileo-colostomy or ileo-rectostomy.

29. The restoration of the continuity of the intestinal canal by perforated approximation plates, or by lateral implantation, should be resorted to in all cases where circular enterorrhaphy is impossible on account of the differ-

ence in size of the lumina of the two ends of the bowel.

30. In cases of multiple gunshot wounds of the intestines involving the lateral or convex side of the bowel, the formation of intestinal anastomosis by perforated decalcified bone plates should be preferred to suturing, as this procedure is equally, if not more, safe, and requires less time.

31. Definitive healing of the intestinal wound is initiated only after the formation of a net-work of new vessels in the product of tissue proliferation from the approximated serous surfaces.

32. Under favorable circumstances quite firm adhesions are found within the peritoneal surfaces in six to twelve hours which effectually resist the pressure from within outward.

33. Scarification of the peritoneum at the seat of coaptation hastens the formation of adhesions and the definite healing of the intestinal wound.

34. Omental grafts, from one to two inches in width, and sufficiently long to completely encircle the bowel, retain their vitality, become firmly adherent in from twelve to eighteen hours, and are freely supplied with blood-vessels in from eighteen to forty-eight hours.

35. Omental transplantation, or omental grafting, should be done in every circular resection, or suturing of large wounds of the stomach or intestines, as this procedure favors healing of the visceral wound, and affords an additional protection against perforation.

TREATMENT OF SPINAL ABSCESSES.

At a meeting of the Harveian Society of London, held Thursday, May 3, 1888, MR. WATSON CHEYNE read a paper on this subject (*Brit. Med. Journ.*, May 19, 1888). He said that in these abscesses we had to consider the contents, the wall, and the lesion of the ball from which they started, although the bone-lesion could not always be made out. There were three chief types of tubercular disease of the spine,—1. Formation of tubercular cavities containing soft, cheesy material; 2. Formation of tubercular sequestra, which either lay free in a cavity lined with tubercular granulations or were not completely separated; 3. A superficial caries of the bone. The first two forms were those which were chiefly associated with marked curvature, while the third form was not necessarily associated with curvature, unless it occurred in conjunction with the others, or spread in along the intervertebral disks and destroyed them; but the third form was more extensive; it was chiefly found in adults, and a larger proportion of abscesses accompanied it than in the case of the other two. When the osseous lesion approached the surface it involved the periosteum and ligaments, and led to the formation of a firm nodule, which, on microscopical examination, was seen to consist of a granulation-tissue, in which the inflammatory cells were few in amount, but which contained numbers of tubercles. The nodule constantly extended by infiltration of the neighboring tissue with similar growth, while at the same time the older tubercles which were present in the centre of the mass tended to undergo caseation; the caseous material became infiltrated with exuded fluid, and thus we came to have a central collection of broken-down cells and tissue floating in a variable amount of fluid, and surrounded by a wall composed of new tissue infiltrated with tubercles; in fact, a chronic abscess. The growing part of the abscess was thus the wall, while the contents were not pus, properly so called, but broken-down portions of the wall. However extensive the abscess, the wall would be found on examination to present the above appearance, and portions of it inoculated into guinea-pigs set up tuberculosis. The pyogenic organisms did not take any part in the production of chronic abscesses, as shown, among other things, by the fact that they grew rapidly and luxuriantly in the contents of chronic abscesses, while pus in which they had already grown was no longer a favorable nidus for their development. The bad results following the opening of these abscesses where fermentation was not prevented, would be readily understood from their pathology. The entrance of the putrefactive organisms gave rise to the various symptoms of septic intoxication. The pyogenic organisms were able to grow in the contents or in the wall, and cause septicæmia or pyæmia, and the chronic osteomyelitis of the bone might be converted into a dangerous acute osteomyelitis. At a later period the continued growth of the pyogenic organisms kept up a state of chronic septicæmia, and the profuse discharge led to exhaustion or waxy degeneration. The methods of treatment considered were two in number,—those which led to the cure of the abscess without opening it, and those in which the abscess was opened. Reference was especially made to the results obtained by injection of these abscesses with iodoform

mixed with glycerin, or with iodoform dissolved in ether; and the method of employment and the results obtained by this plan were narrated, the general conclusion come to being that it would be well to adopt these plans in all suitable cases before proceeding to open the abscess. Details were given of the results obtained by the method of aseptic opening and drainage of these abscesses, the cases referred to having been partly treated by Sir Joseph Lister and partly by the author. Statistics of fifty-six cases were given, of which 73.2 per cent. healed and 12.5 per cent. died. These were cases chiefly of psoas abscess, but there were also lumbar, dorsal, and cervical. The cases were most numerous between the ages of 20 and 30: twenty-two per cent. of these abscesses recurred at periods varying from eighteen days to three years, but the great majority of these cases had again healed, and the patients remained well. As to the causes of death, four patients died of phthisis, one of exhaustion, one of whooping-cough, and one of erysipelas, which attacked a small incision made in the neck without antiseptic precautions, and which did not spread under the dressings. The latter case was, in reality, a case of cure which died of an accidental attack of erysipelas. The cases in which septic infection of the wound occurred were discussed, and the causes of this occurrence pointed out, and as most of these accidents were avoidable the proportion of successes in future would probably be greater. The average length of time taken in healing was from eight to nine months, but one or two cases lasted considerably longer. In some instances tubercular disease existed elsewhere, and a case was narrated in which a number of abscesses occurred in connection with various bones and which ultimately got well. The progress of a case under aseptic treatment was then described, and the contrast between this course and that followed when the wound became aseptic was pointed out, in the case of a patient whose wound in the first instance followed an aseptic course and healed, but who some time later had recurrence of the abscess, which burst before the patient was admitted to hospital. As to the question when these abscesses should be opened, the conclusion come to was that they ought to be treated as soon as possible, for the chances of absorption were very slight, and if absorption did not occur the abscess-wall grew, and the abscess became larger. It had already been pointed out that in many cases it would be well to employ the methods of iodoform injection for opening the abscess. As to the position of the opening, the most important point was to have it as far removed from sources of contamination as possible: in the case of psoas abscess, either in the lumbar region or in the neighborhood of the anterior superior spine; in the case of retro-pharyngeal abscesses, at the upper and posterior part of the sterno-mastoid muscle. An important question was what should be done with the abscess-wall, which was a very essential part of the abscess. In subcutaneous and small chronic abscesses the author urged that they should be dissected out as if they were cysts, but in these spinal abscesses this was rarely possible, and even scraping the wall thoroughly was dangerous on account of the important structures in the vicinity. Nevertheless, as much of the abscess-wall should be removed as possible, and the author had found great advantage in touching the portion which remained with undiluted carbolic acid. The removal of the diseased bone, as advocated by Mr. Treves, was seldom feasible, for in the lumbar region the disease was more often a superficial caries of considerable extent than a necrosis, and any attempt to scrape or gouge away the diseased part was impracticable. In the neck this was more feasible, and the possibility of doing good in this way must be borne in mind. With regard to the method of dressing, it must be conducted strictly on the principle of excluding all micro-organisms,—that is to say, it must be strictly aseptic. The author was inclined to think that for these abscesses the old carbolic dressings were the best, though he often combined them with the alembroth dressings which had recently come into use. The author objected strongly to imperfect antiseptic treatment in these cases, and more especially to the attempts to remedy the mischief so arising by injecting irritating antiseptic solutions. In conclusion, stress was laid on the fact that the patient was also suffering from disease of the spine, and the treatment necessary in each case must be adopted. As a rule, it was best to keep the patient in bed in the recumbent posture, with a light apparatus to prevent lateral movement, and to remind him that he must not sit up. As a rule, the general health improved during the patient's stay in bed, and it was not usually seen at the conclusion of the case that any advantage was gained by letting them get about.

Mr. Lockwood said he considered the spinal lesion of the most importance, and the

abscess but an accident added to it. Rest in the recumbent posture frequently led to ankylosis and cure. He wished to know whether Mr. Cheyne had experience of cases in which rest had been maintained and the abscess left alone; also whether all these cases were tubercular because their contents produced tuberculosis in guinea-pigs. The question was also raised as to the occasional origin of the disease in the intervertebral disks. The length of time taken by the abscess to heal was an indication of the progress of repair in the spine. If the abscess required opening, antiseptic precautions were essential.

Mr. Cheyne, in replying, said that he had no personal experience of the absorption of these abscesses when the patient was placed in bed in the recumbent posture, but he referred to Lacharrière's paper, in which a number of cases of this occurrence were mentioned; for reasons stated in the body of the paper, the author thought this treatment was injudicious. With regard to the views that the occurrence of tuberculosis in guinea-pigs did not necessarily imply that the material introduced was tubercular, he pointed out that the experiments on which such a conclusion was founded had been completely disproved, and that we must look on the occurrence of tuberculosis in guinea-pigs after inoculation as the result of the inoculation of tubercular material. As to whether the disease could begin in the intervertebral disks, he did not deny the possibility of this occurrence, but thought it much more probable that the destruction of the disks was secondary to disease of the bone. As to the point that the length of time taken in healing really implied the length of time for the bone-lesion to get well, and that, therefore, the treatment of the bone-lesion was more important than that of the abscess, he pointed out that the delay in healing was in all probability mainly dependent on the length of time required for the osseous lesion to get well, but that, however important the treatment of the bone-lesion, if the aseptic treatment of the sinus were neglected, the chances of recovery of the bone were very much less. As to the necessity for the spray, he held that it was not essential, but that in many cases it was the most convenient form of irrigation.

PYRIDINE.

In a number of previous issues we have laid before our readers the testimony as to the value of pyridine in asthma and other respiratory affections. In the *Medical Chronicle* for May, 1888, Dr. D. J. Leech has analyzed a number of further contributions to this subject appearing in Italian and Russian journals. The following is an abstract of his report:

Pyridine (C_5H_5N) is a volatile colorless liquid, with a strong odor and a burning taste, produced during the dry distillation of many forms of organic matter. It is present in animal oil (Dippel's) made by distilling bones, and also in coal-tar; it is formed, too, during the combustion of tobacco, and probably during the burning of nitre-paper and several other organic substances the fumes of which are used for the relief of asthma. Harnach and Meyer's experiments led them to look upon it as a stimulant of the motor centres and nerve-endings. Bochefontaine, on the other hand, found it to be a local irritant, though, after introduction into the system, it causes death by paralysis. Sée regarded it as a depressor of the reflex irritability of the spinal cord and respiratory centre, and as the active ingredient of the various fumes from cigarettes, medicated papers, etc., which give relief in asthma. He says that, next to iodine, it is the most useful remedy in this ailment. The use of pyridine has since been advocated by Neff, Kovacs, and others. Silva has examined further its action on the respiratory organs, and concludes that it acts by stimulating the trigeminal nerves, and thence the respiratory centre, which, however, it subsequently paralyzes. It also influences the pneumogastric endings, causing increased secretion of the bronchial tubes. Like Bochefontaine, he found that its inhalation produced a tendency to sleep, from which he concludes that it also influences the cerebral cortex.

He has made investigations to determine what becomes of pyridine when taken internally. He started with the idea that it would undergo changes somewhat similar to those of benzol, from which it differs only by the substitution of an atom of N for one of CH. Now, benzol, when introduced into the system, is excreted as phenol, but the phenol does not appear free in the urine alone, but in a compound paired with H_2SO_4. On giving acetate of pyridine to animals, however, he found, not what he expected, but methyl-pyridyl ammonium hydroxide ($OH.CH_3NC_5H_5$). Oechsner de Coninck, in a communication made to the Société de Biologie, while acknowledging the possibility of such a transformation, asserts that, from experiments

made in 1884, he is satisfied a considerable portion of the pyridine taken internally escapes unchanged in the urine, saliva, and breath exhalations.

De Renzi has given pyridine internally. He finds that it decreases the frequency of the heart's action, and increases the force of the systole. It increases the blood-pressure, and under its influence he has seen irregularity of the heart's action disappear. It lessens the frequency of respiration.

He says that 6 to 10 drops may be taken daily, and the amount may be gradually increased to 25 drops. He recommends it in asystolism. He says it has the advantage over digitalis of acting quicker and not being cumulative. He has found it useful in angina pectoris.

Pyridine is not a pleasant remedy either to take internally or to inhale. It has an unsavory odor, but it seems worth a trial, when other remedies fail to relieve dyspnœa. Sée used it by placing about a drachm on a plate in a small room, in one corner of which the patient is seated. It may also be inhaled from water, in which it is soluble. 5 to 20 drops may be added to ℥iss of water in an inhaler, or 4 or 5 drops may be inhaled from a pocket-handkerchief. With regard to its internal use, further clinical experience is required before such claims as De Renzi puts forth for it can be fully allowed.

SACCHARIN IN BEER.

The use of saccharin for sweetening beer was the subject of an interesting discussion in the British House of Commons in committee on the Customs and Inland Revenue Bill. A clause in that measure provides for the prohibition of the use, in beer, of any substance by which the interests of the revenue might be injured, and the Chancellor of the Exchequer strongly urged the recognition of saccharin in this respect, and in this he was seconded by Sir E. Birbeck. Ranged on the other side were Sir Lyon Playfair, Sir Henry Roscoe, Dr. Farquharson, Mr. J. B. Roberts, and Mr. Gladstone.

The Chancellor held that if the use of saccharin were permitted the revenue would suffer to the extent of not less than one million sterling, inasmuch as the addition of saccharin did not add to the specific gravity of the beer, and it was on this basis that the duty was determined. A few grains of saccharin would do duty for many pounds of sugar, as he understood that so great was the sweetening power of this substance that twelve tons would suffice for the brewing industry of the whole country. He was also informed that it would have the effect of producing upon the palate of a man the impression that he was drinking strong beer instead of light beer, and though the quantity of alcohol in the two kinds was almost identical, the sustaining power of the former, by reason of the sugar it contained, was greater. He understood that in any case the benefit to the general industries of the country would not be great if the manufacture of saccharin were encouraged, inasmuch as the patent under which it was made will hold good for six or eight years.

On the other hand, Sir Lyon Playfair maintained that the manufacture of saccharin should be fostered. It was now produced only in Germany, but it could be made in England at a cost of twenty shillings, or, at most, thirty shillings, per pound. Foreign brewers used it very largely, and if English brewers were not so favored they would be placed under a great disadvantage. The theory of the department that the use of strong beer would decline, the revenue suffering to a corresponding extent, could easily be met by raising the duty on light beer. Sir H. Roscoe thought it was in the interest of the people to assist the consumption of the latter beverage, and the introduction of the new sweetener would have that effect. He believed that the detection of small quantities, such as were employed, was almost impossible, and it would be better to have it done openly, under proper restrictions, than covertly, as it doubtless would be. The prohibition would be a restraint of industry which ought not to be entertained.

Dr. Farquharson, than whom there are few better authorities, did not quite follow the Chancellor of the Exchequer when he spoke about the sustaining and nourishing properties of beer. People generally consumed beer because they were thirsty, or on account of its exhilarating effects, and not because it would nourish them. If used as food, beer was most expensive. They heard a great deal of beer doing the workingman good, but, in his opinion, it had the opposite effect. Alcohol, in any form, was an immense hindrance to muscular or any other kind of exertion.

An amendment limiting the power of prohibition was offered by Sir L. Playfair, but was rejected by a very large majority, and

the use of saccharin, for the purpose indicated, will probably not be allowed, so that, as claimed by Sir E. Birbeck, "the national drink of England shall be above all suspicion."—*Canadian Pharmaceutical Journal*, June, 1888.

CANADOL AS A LOCAL ANÆSTHETIC.

Canadol is one of the constituents of a heavy naphtha-ether (No. II.) obtained by the fractional distillation of American naphtha. It represents a limpid, very volatile, easily inflammable fluid, possessing a strongly pronounced benzine odor. The liquid is insoluble either in water or in alcohol. When a canadol spray is directed to the bulb of Cossell's-Lonelon's minimal (alcohol) thermometer, the temperature sinks in a minute from 20° to —10°, in two minutes to —10.6°, in five minutes to —10.8°, the latter level being the lowest reached (the respective figures for common ether are —10°, —15.6°, —17.5°). Canadol is cheaper than ether; while a fluid pound of anhydrous ether costs (in Russia) about one shilling and seven pence, a similar quantity of canadol may be purchased for about ten pence, or even still cheaper.

Following the suggestion of Professor J. J. Kanonnskoff, who had pointed to canadol as a good substitute for ether, PROFESSOR N. J. STUDENSKY, of Kazan, gave a trial to the substance as a local anæsthetic in twenty-three surgical cases (extraction of foreign bodies, amputation of finger, excision of lymphatic glands, atheroma, ingrowing nails, incision into abscesses, furuncles, whitlows, ranula, etc.) (*Medical Chronicle*, May, 1888).

According to a report of Dr. J. P. Plüshkoff, of Professor Hadensky's clinic, canadol was atomized by means of Richardson's apparatus, the nozzle of the latter being kept at a distance of five or six centimetres from the operation field. The results were most satisfactory. The integuments became frozen in the interval, varying from thirty to ninety seconds; in a majority of the cases complete anæsthesia was obtained in less than a minute. Only one of the patients complained of pain when some deep lymphatic glands were incised. In the remaining cases the operation was quite painless (as well as bloodless) from the beginning to the end. The healing process did not differ from the normal in any of the cases.

On the whole, the author thinks that canadol is superior to ether in all respects (in regard to cheapness, rapidity, constancy of anæsthetic action, etc.).

USTILAGO MAIDIS IN OBSTETRICS.

In testing a new remedy, as J. Veit remarks, we must, unfortunately, have chief recourse to the less exact province of experience. Experiments on animals, no matter how carefully conducted, do not permit of an indication as to a similar action on man. Thus, to cite only one example, the exact experimental investigations of Fellner with hydrastis canadensis seemed to indicate that this preparation, now so much in use, possessed an ecbolic action. Schatz, however, showed that the experiments of Fellner did not warrant such a conclusion, and direct experiments would have to be made on man in order to establish such a property. Indeed, the experiments of Schatz with hydrastis canadensis proved that this substance has a marked action on the vaso-motor system rather than in producing contractions of the uterus. This conclusion was reached by Schatz through the employment of his tokodynamometer, which registers the slightest variation in the quality and quantity of the uterine pain, and he has conclusively decided the question in the negative, inasmuch as even after large doses the pain became neither more frequent nor stronger. The gynæcological materia medica, on the whole so insignificant, has of late been enriched by a new remedy. This is the preparation ustilago maidis, or corn-smut, as it is termed by the Americans, belonging to the family Graminaceæ. Thus, Dorland reports that he has used ustilago maidis with success during the period of dilatation when slight pains are present. According to him, ustilago maidis is less poisonous and acts more safely than ergot. According to the analysis of C. H. Crissler, propylamin is found in ustilago, is its active principle, agrees in its properties, and is, in fact, said to be identical with secalin.

In the *Therapeutische Monatshefte* for April, 1888, DR. VON SWIECICKE reports the result of the employment of the fluid extract of ustilago maidis (obtained from Parke, Davis & Co., who deserve the credit for the introduction of this remedy) in nine cases in which the os uteri was not completely dilated and the head remained at the rim of the pelvis. He states, besides, that he has tried it in one case of secondary inefficient pains. By placing the hand

on the uterus he has observed the normal frequency of the pains, and then administered internally 25 drops of the fluid extract, never giving more than three doses of this amount. In eight cases (seven multiparæ, one nullipara) success was evident. After ten or fifteen minutes the pains became stronger and continued longer. In the ninth case the action was not to be observed. The latter case was that of a phthisical woman, 33 years old, mother of five children. In another case, that of a primipara 19 years of age, the head was arrested in the widest portion of the pelvis, the pains entirely ceasing. 25 drops of the fluid extract were given internally, and after twelve minutes the pains became stronger, and a second and third dose of 15 drops sufficed, after the lapse of forty minutes, terminating the labor spontaneously. The hemorrhage which is so apt to occur after secondary weak pains in the third stage of labor did not in this case ensue, the uterus contracting tolerably, simple rubbing of the uterus for several minutes sufficing to produce firm contraction. In no one of the nine cases was a single child born asphyxiated. While acknowledging that so small a number of cases is insufficient to warrant any definite assertion as to the action of ustilago maidis, the author believes that he may safely state that it increases the vigor of uterine contractions, and he recommends the testing of this point by means of Schatz's toko-dynamometer. Nevertheless, by simply placing the hand on the uterus after the administration of this drug, the onset of the pains can be readily detected without the patient noticing the pains and without the uterus being irritated by the inserting of the rubber bulb. It is very desirable that physicians, especially those of America, where the drug was originally introduced, should institute further experiments respecting its efficacy. The question as to whether the agent not only exercises an influence on the uterine muscle or on the uterine centre in the lumbar spinal cord, but also as to whether it affects the vaso-motor centres; how or whether it acts in metrorrhagias and myomas; how it is chemically related to ergot;—all these queries still await reply.

CASCARA SAGRADA IN RHEUMATISM.

In addition to the many things already said relative to the buckthorn family, Dr. H. T. Goodwin calls attention to two therapeutic properties of the *Rhamnus Purshiana* (cascara sagrada) that so far have not before been noticed (*N. Y. Med. Journ.*, June 9, 1888). One is its uselessness as a laxative in the majority of cases of phthisis; the second, its almost specific action in certain forms of rheumatism. Dr. Goodwin's attention was first directed to its failure as a laxative in phthisical patients by the steward of the New Orleans Marine Hospital, who informed him that he had noticed that though it had been administered by nearly every surgeon whom he had served under at the various hospitals to such patients requiring a laxative, it had failed in every case of phthisis. Dr. Goodwin was likewise able to confirm this statement. The effect of cascara sagrada upon rheumatism was discovered by accident, Dr. Goodwin taking himself 10 drops of the cascara sagrada three times a day as a laxative while suffering with severe rheumatic pains in the shoulder. The first morning after taking it the pain was so much less that the arm could be freely moved, and the following day he was entirely free from all discomfort. Occurring to him that the sudden subsidence of the pain might be due to the drug, it was at once tried on a few cases of rheumatism under treatment, all other remedies being discontinued, and 16 drops of the cascara sagrada being given three times daily. Within twenty-four hours there was marked improvement in every case, and he states that since then he has used the cascara sagrada in fully thirty cases, some of which were in out-patients, with the most satisfactory results, seldom having to wait more than twenty-four hours without beneficial effects. In two cases he had to stop it on account of its opening the bowels too freely. In such cases he suggests that one of the preparations of iron be given (separately) at the same time. He usually combines it with syrup in equal parts, and instructs the patient to take from 30 to 40 drops in water.

NERVE-TRANSPLANTATION.

Of late we have often witnessed many successful cases of nerve-suture, where, even after the lapse of many years, the peripheral extremity of a severed nerve-trunk has been proved to be still capable of exercising its function, with the restoration of motor power and of sensibility to the parts that it supplied. It is, however, a new and most encouraging departure that has been successfully carried out by Dr. Gersung, of Vienna, on the illustrious physiologist, Professor von Fleischl. Sixteen years ago Professor von Fleischl sus-

tained a post-mortem wound in the right hand, which resulted in the loss of the terminal phalanx of the thumb. The stump became painful, and amputation higher up was succeeded by the formation of painful neuromata on the divided nerve. In spite of repeated excisions, the condition continued to recur, until two months ago Dr. Gersung decided to transplant a portion of the sciatic nerve from the rabbit and to suture its trunk to the trunk of the median nerve, and its popliteal divisions to the distal ends of the branches supplying the thumb and forefinger. The portion thus transplanted and sutured under strict antiseptic precautions measured six centimetres in length. The result so far must be most gratifying to the subject of the operation, both as a patient and a physiologist; for he is regaining sensation in the fingers, which affords sufficient evidence that the rabbit's nerve has not only become organically united with the human, but that it is performing its function normally. Moreover,—and this is a very interesting feature of the case,—it has not shown the tendency to "neuromatous" degeneration which marked the original nerve. The case demonstrates the well-accepted fact that the nerves themselves, or rather their axis cylinders, are remarkably prone to regeneration, and that physiologically they are simple conductors of stimuli. It suggests, further, the possibility of more satisfactorily dealing with other morbid "habits" of nerves,—such, for instance, as facial tic,—which in many cases have resisted nerve-resection and nerve-stretching. Why this replacement of a portion of a nerve which has a morbid tendency by a portion from a healthy nerve should annul this tendency is quite unexplained. It appears to have done so in this case, and therefore it may be inferred that the method may succeed in others which have hitherto resisted all endeavors at cure by simpler means. Lastly, the case is interesting as proving the practical identity that exists between nerves of different species of animals,—a fact which anatomy has long suggested, but which has only now received physiological proof.—*Lancet*, May 26, 1888.

OXALATE OF CERIUM AS A REMEDY FOR COUGH.

In 1859, Sir J. Y. Simpson introduced the oxalate of cerium for the vomiting of pregnancy, and it has been likewise used with some success in cases of epilepsy having as an aura some gastric disturbance. In 1878, Dr. Clark, of London, first recorded its beneficial effects in chronic cough and shortness of breathing observed in several cases of phthisis, while it has also been used by Dr. Morjé with success in whooping-cough. In the *Medical Record* for June 2, 1888, Dr. Hobart Cheesman records his experience, which covers nine years, with the oxalate of cerium for the relief of coughs, and he states that in over half his cases the oxalate produced decided relief of the cough, and even of other symptoms. In some of them only moderate effects were apparent, while in a few the drug proved nearly or entirely ineffective. He has found that the oxalate of cerium has proved a remedy for cough in every stage of phthisis, but the best results are perhaps seen in irritant cough in the early stages. In chronic bronchitis it has been used with good results. In cough associated with an asthmatic condition in phthisis and bronchitis it may relieve both the cough and dyspnœa, and it has proved effective in spasmodic asthma. It has been used with some effect in whooping-cough and bronchitis. He has never seen any dangerous symptoms attributable to the drug, although he has given 20 grains several times occasionally in one day. The sensation of dryness in the mouth and throat is the only unpleasant symptom noticed by the patients, and they cease to mind this after the drug has been taken a few days. Administering the drug dry seems to be the most satisfactory method, and the effects seem better when it is given on an empty stomach and in fairly large doses rather than the same quantity distributed in smaller ones. The initial dose should be 5 grains, given early in the morning or at bedtime, or both, or intermediate doses if required; and it may be increased, unless relief is obtained, to 10 grains or more several times a day. Large doses may succeed where smaller ones may have had no effect, or the cough, being relieved for the time by smaller doses, may return, and may be again moderated by increasing them. It loses its effects with continued use in some cases altogether, while in others the effect lasts so long, at least, as it is found necessary to employ the remedy. Its benefit may be prolonged by stopping or reducing the doses as soon as relief is obtained, and resuming them on return of the cough. One or more failures may be followed in the same subject with subsequent success, and he states that it should be persisted in for a number of days in increasing doses before

being abandoned as useless. The following are his conclusions:

1. The oxalate of cerium is a serviceable remedy for many kinds of cough, at least for a considerable time, and is very useful as an alternate with other cough medicines. 2. When it is employed opiates may be dispensed with for the most part. 3. It may be safely given, in doses of 10 grains or more, several times a day, for many days in succession.

MYXŒDEMA.

At the meeting of the Clinical Society of London, held May 25, 1888, DR. ORD, as the chairman of the myxœdema committee, read the following conclusions (*Brit. Med. Journ.*, June 2, 1888):

He admitted that the time taken up in the investigation was protracted, but he claimed that when the results were known the time would not appear out of proportion. 1. That myxœdema is a well-defined disease. 2. That the disease affects women much more frequently than men, and that the subjects are, for the most part, of middle age. 3. That clinical and pathological observations respectively indicate, in a decisive way, that the one condition common to all cases is destructive change of the thyroid gland. 4. That the most common form of destructive change of the thyroid gland consists in the substitution of a delicate fibrous tissue for the proper glandular structure. 5. That interstitial development of fibrous tissue is also observed very frequently in the skin, and with much less frequency in the viscera, the appearances presented by this tissue being suggestive of an irritative or inflammatory process. 6. That pathological observation, while showing cause for the changes in the skin during life, for the falling off of the hair and the loss of the teeth, for the increased bulk of the body as due to the excess of subcutaneous fat, affords no explanation of the affections of speech, movement, sensation, consciousness, and intellect, which form a large part of the symptoms of the disease. 7. That chemical examination of the comparatively few available cases fails to show the general existence of an excess of mucin in the tissues adequately corresponding to the amount recorded in the first observations, but that this discrepancy may be in part attributed to the fact that tumefaction of the integuments, although generally characteristic of myxœdema, varies considerably throughout the course of the disease, and often disappears shortly before death. 8. That in experiments made upon animals, particularly on monkeys, symptoms resembling, in a very close and remarkable way, those of myxœdema, have followed complete removal of the thyroid gland, performed under antiseptic precautions, and with, as far as could be ascertained, no injury to the adjacent nerves, or to the trachea. 9. That, in such experimental cases, a large excess of mucin has been found to be present in the skin, fibrous tissues, blood, and salivary glands; in particular the parotid gland, normally containing no mucin, has presented that substance in quantities corresponding to what would be ordinarily found in the submaxillary gland. 10. That the full analysis of the results of the removal of the thyroid gland in man demonstrates, in an important proportion of the cases, the fact of the subsequent development of symptoms exactly corresponding with those of myxœdema. 11. That, in no inconsiderable number of cases, the operation has not been followed by such symptoms, the apparent immunity being in many cases probably due to the presence and subsequent development of accessory thyroid glands, or to accidentally incomplete removal, or to insufficiently long observation of the patients after operation. 12. That whereas injury to the trachea, atrophy of the trachea, injury of the recurrent laryngeal nerves, injury of the cervical sympathetic, and endemic influences have been, by various observers, supposed to be the true causes of experimental or of operative myxœdema (cachexia strumipriva), there is, in the first place, no evidence to show that, of the numerous and various surgical operations performed on the neck and throat, involving various organs and tissues, none, save those in which the thyroid gland has been removed, have been followed by the symptoms under consideration; that in many of the operations on men, and in most, if not all, of the experimental operations done by Professor Horsley on monkeys and other animals, the procedure avoided all injury of surrounding parts, and was perfectly aseptic; that myxœdema has followed removal of the thyroid gland in persons neither living in, nor having lived in, localities the seat of endemic cretinism; that, therefore, the positive evidence on this point outweighs vastly the negative, and that it appears strongly proved that myxœdema is frequently produced by the removal, as well as by the pathological destruction, of the thyroid gland. 13. That whereas, according to clause 2, in myxœdema

women are much more numerously affected than men, in the operative form of myxœdema no important difference of the same kind is observed. 14. That a general review of symptoms and pathology leads to the belief that the disease described under the name of myxœdema, as observed in adults, is practically the same disease as that named sporadic cretinism when affecting children; that myxœdema is probably identical with cachexia strumipriva; and that a very close affinity exists between myxœdema and endemic cretinism. 15. That while these several conditions appear, in the main, to depend on, or to be associated with, destruction or loss of the function of the thyroid gland, the ultimate cause of such destruction or loss is at present not evident.

The PRESIDENT congratulated the Society on the completion of this important investigation, and said their thanks were due to the committee for the enormous work and the zeal and ability which had enabled them to present this summary of the report, and practically the report itself, during the present session. When they heard the conclusions and imagined the enormous amount of investigation and research and inquiry which was embodied therein, four years seemed a comparatively short period for the completion of such a labor. The report would make the present session memorable. It reflected the greatest possible credit upon the Society. It was the most important work yet carried out in its name. Already the labors of the committee had served to stimulate the carrying out of similar investigations in Germany, where men had been first convinced of the reality of the disease from the labors of the Society and its committee. He thought the members could hardly thank sufficiently the authors of the report, in which it appeared that the only person not heard of was Dr. Ord, the chairman and director of the investigation. His name, nevertheless, would for all time be associated with the literature of the disease.

A CASE OF RUPTURE OF THE URINARY BLADDER IN WHICH THE RENT WAS SUTURED.

At a meeting of the Clinical Society of London, held May 11, 1888, MR. SYMONDS read notes of a case of rupture of the urinary bladder in which the rent was sutured (*Med. Press*, May 16, 1888).

The patient was a child, æt. 7, who was thrown from Blackfriars Bridge, falling into a passing barge on her abdomen. She was admitted in a state of extreme collapse, and for some time it was feared she would die. The abdomen was full and tender, chiefly over the hypogastric region, where was a prominence exactly resembling a moderately distended bladder. No urine having been passed after about six hours, a No. 1 catheter was inserted. At first a few drops of clear urine were withdrawn, and then a drain of dark blood. Under chloroform a catheter was again introduced, and a small quantity of dark fluid removed. An attempt was made to pass the catheter through a possible rent in the viscus, without success. The abdomen was at once opened, for though the catheter passed easily into the bladder, no reduction was effected in the dull prominence in the hypogastric region. A large quantity of dark fluid (having a faint urinous odor) immediately escaped. The rent was not at once found, but on passing a steel sound into the bladder it protruded just below the apex. There an irregular rent one and a quarter inches long was found, involving partly the peritoneal, but chiefly the extra-peritoneal surface. It was Y-shaped. The fold of peritoneum passing from the bladder to the abdominal wall was much lacerated, and the edges of the bladder were much torn. About twenty Lembert's sutures were inserted, the peritoneum washed out with weak carbolic acid and perchloride of mercury, and the abdominal wound closed. A catheter was tied into the bladder. For a time the child did well. Then the catheter irritated her, and was removed. She never recovered from her collapse fully, passing from it into a restless, non-feverish condition. Fearing an accumulation of urine and inflammatory products, the abdomen was re-opened on the sixth day, but nothing was found. Next day urine escaped through the wound, and the child died on the eighth day. At the inspection a collection of pus was found on the left side of the bladder, extending into the left ilio-lumbar region. The peritoneal part of the wound was soundly healed, but the non-peritoneal part was gaping widely, the sutures having torn through. The urine had escaped, and had set up the suppuration. There was no general peritonitis. There was separation of the right sacro-iliac synchondrosis. In reviewing the case, Mr. Symonds said that he considered the best plan would have been to have closed the peritoneal part of the rupture and the rent in the anterior false ligament, and to have left the rest of

the wound open, with a drainage-tube into the bladder. The edges of the rent were ragged and bruised, and though turned in, the muscle did not unite, nor could it be expected to do so. The case he pointed out was a good illustration of the necessity of leaving the extra-peritoneal portion of the rent open. One point in the diagnosis was important, the prominence representing the bladder was due to the urine, the fluid not having passed upwards to any extent. Above it the small intestine formed a boundary, the pelvic cavity being quite empty of bowel.

INTRAPLEURAL INJECTIONS OF STERILIZED AIR IN THE TREATMENT OF PNEUMOTHORAX.

At the meeting of the Académie de Médecine, held April 24, 1888, M. POTAIN read an important paper on the above subject, in which he reported the results of the treatment of three cases of tuberculous patients suffering from pneumothorax, in whom he had injected sterilized air in the pleural sacs (*Gaz. Hebdomadaire des Sciences Médicales*, May 5, 1888). He terminates his article with the following *résumé:*

1. It is possible to completely evacuate the pleural infusion consecutive to pneumothorax, substituting sterilized air for it. 2. The air, deprived of all germs, is free from any hurtful action, and produces no alteration in the pleural fluids. 3. This procedure removes the great dangers which result from the presence of a large quantity of liquid in the pleural cavity, or from the rapid evacuation of an excessive effusion. 4. It promotes in addition the avoidance of the serious inconvenience of frequently repeated punctures, and permits to the lungs the possibility of slow, progressive expansion. 5. Finally, it appears in maintaining the lung for a considerable time in a state of repose and inactivity to lead to definite cure of tubercular lesions.

The intrapleural method of injection of sterilized air, which is now defended for the first time, is only justifiable under the following indications and counter-indications: 1. It should not be employed if the pneumothorax causes no notable dyspnœa. 2. If the air has accumulated under considerable pressure it should be partly evacuated, and the pressure established should be somewhat below the atmospheric pressure. 3. It should not be employed if it produces a serious fibrinous effusion. 4. If the effusion becomes abundant, it is necessary to totally remove it, and to substitute sterilized air in such a manner as to preserve in the pleural cavity a pressure little removed from the normal pressure, which amounts to about seven millimetres of mercury. If the effusion is sero-pleural and not fetid, the same method of treatment may be employed. 5. If the case is one of purulent suppuration, with a large opening into the bronchi, or of a purulent and fetid effusion, the operation for empyema should be immediately performed if the lung on the opposite side is able to carry on respiration. If not, the hermetic drain should be applied.

M. Potain describes as follows the case in which he first employed this method of treatment:

A man in the third stage of phthisis entered the hospital with a pneumothorax ten months ago, and to-day he is completely cured of the latter affection, and the tuberculous affection seems to have been greatly ameliorated. The man was 23, and the fever, which ran high at the *début*, fell completely at the end of a fortnight. The effusion was very considerable, reaching as high as the subspinous fossa of the scapula. Thoracentesis was clearly indicated, were it not for certain reasons which might have rendered the liquid, up to the present limpid, purulent, and consequently endangered the existence of the patient, already very precarious; as by such means the lung which had been compressed, and in this manner holding in check, as it were, the process of tuberculization, would, in regaining its volume, by expansion give free access to the march of the primitive malady, and the result would be fatal to the patient in a very short time. It was for these reasons that M. Potain adopted the method which he explained to his colleagues. He drew off the entire quantity of the liquid, but he took care to replace it as he proceeded with air, in order to avoid the dilatation of the lung. Ten years ago such a treatment would have been considered as very rash, but it was now well known that air was only dangerous in proportion to the germs it contained, and that when deprived or purified of those germs it became completely innocuous. M. Potain performed thoracentesis in the usual manner, and introduced the air through cotton and a bottle of a strong solution of carbolic acid, which rendered it effectually sterile. The effusion returned at the end of six weeks, when the operation was renewed, the canula used being double to allow simul-

taneously the exit of the liquid and the entry of the sterilized air. Four times the operation was performed, M. Potain thinking that it was time to draw off the air and the rest of the liquid, but immediately the patient was seized with pain and suffocation, and the air had to be renewed. However, in a few weeks all trace of effusion had disappeared, the lung expanded, and the man became rapidly convalescent. Two other patients were treated in a similar manner, one of whom got well, while the other was greatly benefited.

THE TREATMENT OF QUINSY WITH COCAINE.

At the meeting of the Clinical Society of London, held May 11, 1888, Dr. de Havilland Hall read notes of three cases of acute parenchymatous tonsillitis, or quinsy, treated by cocaine (*Med. Press*, May 16, 1888).

Case I.—A laborer, æt. 28, was admitted into the Westminster Hospital on September 28, 1887, suffering from quinsy. He had had two similar attacks in the last five years. On admission he had been ill four days. The right tonsil and adjacent soft parts were enormously swollen, and he was unable to swallow without the greatest difficulty and pain. On the 30th there was complete inability to swallow, but after painting a twenty per cent. solution of cocaine freely over the whole of the fauces the patient was able to swallow some bread and milk. The same night the left tonsil became affected, and the cocaine solution was applied again next day with an equally good effect, and the day following he was able to swallow bread and butter. No suppuration occurred. The patient left the hospital quite well, after having been in one week, instead of four and three weeks respectively, as on the two former occasions.

Case II.—A publican, æt. 25, seen in consultation with Mr. Wright at Kennington on October 26, 1887. When seen the patient's complexion was dusky, he was suffering from some dyspnœa and great dysphagia. Both tonsils and the soft palate were greatly swollen, and were covered with a viscid secretion, but there was no false membrane. Pulse 120, feeble. Urine, specific gravity 1030, loaded with albumen. The patient's condition was a most anxious one. The throat was swabbed out with a twenty per cent. solution of cocaine, and the application was repeated in ten minutes. Five minutes later the patient was breathing easier, and was able to swallow half a pint of egg, milk, and brandy. During the next two days applications of cocaine were made night and morning, and one on the third day. The patient gradually improved, no suppuration occurred, and a week later the urine was free from albumen and he was well.

Case III.—A porter, æt. 39, attended at the Throat Department of the Westminster Hospital on November 16, 1887, complaining of sore throat and inability to swallow for thirty-six hours. He was previously quite well. The left tonsil and adjacent parts were swollen, and there was a yellow patch on the tonsil. Pulse 88, fair volume. Temperature 102.2°. Urine contained a trace of albumen. A twenty per cent. solution of cocaine was applied, and the patient was soon able to swallow half a pint of bread and milk. Four days later the patient had no difficulty in swallowing, and was practically well. In all three cases, as soon as the patients could swallow easily, tincture of the perchloride of iron, with or without quinine, was ordered. Dr. de Havilland Hall pointed out that cocaine has a twofold action in these cases,—it diminishes the sensibility of the parts to which it is applied, and at the same time lessens the blood-supply, hence deglutition is much facilitated. He also thought that it checked suppuration. He advises the throat to be sprayed out with a solution of bicarbonate of sodium, ten grains to the ounce, before the cocaine is applied. By this means less cocaine is needed, and it appears that cocaine acts more efficaciously in the presence of an alkali.

ANTIPYRIN IN HEMORRHAGE AND ULCERS OF THE LEG.

In view of the statements of Henocque and Huchard as to the hæmostatic properties of antipyrin, Dr. Alexëi G. Glinsky, of Kharkov, tried (*Transactions of the Kharkov Medical Society*, Part I., 1887, p. 23) the drug (in the shape of cotton-wood plugs soaked in a five or ten per cent. solution, or powdered with the antipyrin) in a series of cases of bleeding, such as epistaxis, hemorrhage from surgical or accidental wounds, etc. On the whole, his results were unsatisfactory. In some cases of lacerated wounds of the fingers (inflicted by a nail, etc.) hemorrhage was arrested, but it was not certain that this

effect was not rather due to pressure than to the antipyrin. Dr. Glinsky tried it on a wound on his own finger, but was obliged to have recourse to perchloride of iron. In three cases of severe epistaxis the bleeding came on again in five or ten minutes after withdrawing the antipyrin plugs, and ultimately could be stopped only by plugging the posterior nares. Antipyrin had no effect in checking hemorrhage after excision of acute condylomata, labial papilloma, etc. On the other hand, Dr. Glinsky was much pleased with antipyrin as a dry dressing in indolent ulcers of the leg, fully confirming Dr. Bosse's observations (*Berliner Klin. Wochenschrift*, No. 33, 1886) on this point. The healing action of the drug in these cases is so rapid that he strongly recommends the use of antipyrin in powder when other means fail. He also obtained good results with antipyrin in acute articular rheumatism, in which it is said to act as effectively as salicylate of sodium and more rapidly. It also proved useful in migraine and neuralgia of the fifth nerve. Unpleasant secondary effects (rash, sickness, collapse) occurred in his experience very rarely.—*British Medical Journal*, May 19, 1888.

EFFECTS OF ACUTE AND CHRONIC COCAINE-POISONING.

Dr. V. Zanchevski, of St. Petersburg, has published some observations on the pathological changes found in the bodies of animals poisoned by cocaine. The experiments were made in two series. In the first series the animals (dogs) were given hypodermically a single lethal dose of cocaine,—viz., $\frac{4}{10}$ grain for every two pounds of the weight. In the second series of dogs chronic poisoning was produced by the subcutaneous injection of a much smaller quantity,—about a fifth part of the lethal dose was given every day for six days. A day was then missed, and during the next six days an increased dose given. Every seventh day was missed, and the doses gradually increased. Thus, dog No. 6, weighing five thousand six hundred and fifty grammes, was experimented on for seventy-three days. During each of the first six days $\frac{4}{10}$ grain were given; during the next six, $\frac{6}{10}$ grain. For ten days $\frac{8}{10}$ grain were given, for thirteen days $\frac{9}{10}$ grain, and for eleven days 1 grain, and for the last eleven days $1\frac{2}{10}$ grains. The total quantity given was about twenty grains. One day in the week was always missed. At the beginning the immediate effect of the cocaine was seen in increased frequency of the cardiac beats and of the respiration, which, however, did not last more than a quarter of an hour. Afterwards great weakness of the legs came on, the animal remained in a sitting posture, and swaying its head to and fro. The pupils were dilated and sensation intact. In three hours the normal condition returned. When larger doses were given the disturbance was greater, the animal commencing to try to run about, and the subsequent weakness lasting for a longer period. The general results obtained by observation of the animals during life and by post-mortem examination of the bodies showed that in acute poisoning the mode of death was asphyxia. In chronic cases without asphyxia there was a marked hyperæmic condition of the central nervous system, which presented a contrast to the state of the rest of the organs, which were anæmic. Albuminoid degeneration was especially marked in the ganglionic cells of the spinal cord and the nerve-cells of the heart ganglia; it was present also, but in a less marked degree, in the muscular fibres of the heart, in the ganglionic cells of the medulla oblongata, and in the hepatic cells. In these last there was found an accumulation of glycogen. In chronic poisoning the degenerative processes were found to have advanced further in the cells of the spinal cord and medulla, minute cavities, atrophy, and hyaline degeneration being noted. In the heart there was fatty degeneration of the muscular tissue; in its nerve ganglia there were fatty degeneration, minute cavities, and simple atrophy; and in the liver atrophy of the hepatic cells was present. The vascular system was most affected in the spinal cord, there being cellular proliferation and hyaline degeneration of the coats. In the heart and liver an atrophic condition of the tissues was found, also a swelling of the endothelium of the capillaries of the cardiac ganglia.—*Lancet*, May 26, 1888.

DRAINAGE OF THE PERITONEAL CAVITY.

At a recent meeting of the Société de Chirurgie, M. Terrier, referring to the common opinion that drainage of the peritoneal cavity should be attempted only when unavoidable, stated that he believes that drainage is entirely without danger, and that the indications for its employment are by no means rare (*Le Bulletin Médical*, No. 20, 1888). The method which he recommends is to employ a rubber tube, only taking care that the

external opening of this tube is closed by means of a pad of iodoform gauze. He states that he has recently performed drainage of the abdominal cavity in seven cases, consisting of a cyst which broke in the abdominal cavity; a case of pyo-salpingitis, with rupture of the sac; an hydatid cyst of the mesentery and ovaries, with rupture of a suppurated sac; a suppurating tumor of the mesentery, with rupture of the sac into the abdomen; a multilocular cyst of the ovary; a retro-uterine abscess opening into the peritoneum, and a retro-uterine abscess communicating with the rectum, with the escape of pus into the peritoneum. In all these cases he cleansed the peritoneum with sponges and employed drainage, and all the cases were cured without the escape of any considerable quantity of fluid from the tubes, which were left in place from fifteen days to three weeks.

DANGERS OF ANTISEPTICS.

According to the Berlin correspondent of the *British Medical Journal*, May 19, 1888, at the last meeting of the Berliner Medicinische Gesellschaft, Dr. Emil Senger read a paper on the influence of antiseptic remedies on the organs of the body, with special reference to operations on the kidney. It is well known that after nephrectomy, or even nephrotomy, many patients die with symptoms of uræmia or anuria, even when it had been ascertained beforehand by careful examination that the other kidney was quite healthy and capable of secreting the necessary amount of urea. Dr. James Israel, chief surgeon of the Berlin Jewish Hospital, has propounded a very complicated theory as to certain nervous sympathies between the two kidneys, whereby an operation on one may give rise to degeneration of the other. Senger has now proved by experiments on rabbits and dogs that our antiseptic remedies are the cause of these complications. He injected into the animals, when in perfect health, one-tenth or twelfth part of the quantity of corrosive sublimate, carbolic acid, etc., which is sufficient to kill them. He then extirpated one kidney and examined it microscopically, with the result that in all cases he found glomerulo-nephritis. There was exudation between the glomerulus and the capsule, and the epithelium of the tubuli contorti was almost entirely destroyed. He found also fatty degeneration of the liver, the spleen, the heart-muscle, etc. The various antiseptic agents were found to be injurious in different degrees, corrosive sublimate being the most dangerous, then the others in the following order: iodoform, carbolic acid, salicylic acid, boric acid. Senger therefore recommends surgeons to avoid antiseptics in operations on the thorax and abdomen, and urges them to employ either sterilized water, after the manner of Mr. Lawson Tait, or a solution of salt. By bacteriological and pathological researches he proved: first, that this kills the streptococcus pyogenes aureus in twenty-eight minutes, and that the effect is independent of the degree of concentration, for a five per cent. solution is just as effectual as a twenty per cent; secondly, he claims to have shown that chlorate of sodium does not in any way injure the organs, and that no dose is strong enough to kill any animal.

IS LANOLIN ABSORBABLE BY THE INTESTINE?

Dr. Immanuel Munk has tested the absorbability of lanolin in the intestine. This question is physiologically not without importance, since lanolin only commences to melt at 50° C., and is only entirely fluid between 55° and 56° C. The melting-point, therefore, is a considerable number of degrees higher than that of the fatty acids contained in the sebaceous secretions formed by the skin of the sheep. Of these latter substances Munk has found that, although they only melt at a point considerably above the temperature of the animal body, yet they are all but twelve per cent. absorbed in the intestine. Munk's experiments, which were made in the Pharmacological Institute at Berlin, under Liebreich's directions, lead to the following conclusions (*Med.-Chirurg. Rundschau*, May 1, 1888): A dog, weighing twenty pounds, after two days' fasting, was fed on three hundred grammes of meat, with three hundred grammes of water, boiled with fifteen grammes of pig's fat and 29.6 grammes of lanolin. The fæces contained 28.688 grammes of fatty acids and soaps. In another dog, after fasting, a mixture containing three hundred grammes of meat and fifteen grammes of fat, without lanolin, were given, and in this animal the fæces only contained .52 gramme of fatty bodies. Comparing this with the lanolin experiments, it appears that 28.168 grammes of the fat containing lanolin have escaped absorption; or, in other words, that ninety-six per cent. of the lanolin is entirely unabsorbed in the intestinal tract; and when it is considered that

although the temperature of the body is not sufficiently high to lead to the complete melting of the lanolin, yet it will soften it sufficiently to cause it to cling to the walls of the intestine, and so delay its removal in the fæces, it therefore would seem to be positively proved that absolutely no absorption of lanolin occurs in the alimentary tract. This result is of interest from two points of view. It shows, in the first place, that fats whose melting-point is over 52° C. are incapable of absorption, while those whose melting-point lies between 49° and 51° C. are capable of absorption. It also indicates, as Liebreich has maintained, that where lanolin is, it must there have been manufactured, since it cannot have been absorbed by the alimentary tract.

ACTION OF ANTIPYRETICS ON THE LIVER.

According to the Paris correspondent of the *British Medical Journal*, June 2, 1888, *L'Union Médicale* of April 14 publishes some interesting observations on the action of antipyretics, especially antipyrin, upon the liver, by MM. R. Lépine and Porteret. One of these observers has already proved that under certain circumstances anilin helps the disintegration of nitrogenous substances, and decreases the production of heat. One naturally inquires whether pyretics might not, therefore, retard the formation of hepatic glycogen. To elucidate this point, experiments have been made on guinea-pigs. It was first ascertained that the ordinary quantity of glycogen contained in their liver varies not only with their size and nourishment, but is also unequal in the case of animals of the same weight and apparently subject to the same circumstances. A number of guinea-pigs having been placed under the influence of pyretics, MM. Lépine and Porteret found at least one-fifth more hepatic glycogen, and a slight diminution of hepatic sugar. Another experiment showed that the suspension of the transformation of glycogen into sugar is in part the result of a direct action upon the hepatic cells.

THE TREATMENT OF INCONTINENCE OF URINE WITH RHUS AROMATICUS.

Rhus belongs to the family of terebinthinates, and possesses marked astringent properties. Up to the present *Rhus aromaticus* has been cultivated simply for ornamentation, but recently its use has been introduced into medicine by some American physician, whose name has escaped us, for the astringent properties of its bark. In the *Journal de Médecine*, May 13, 1888, MM. Max and Burvenich have reported a number of experiments made with this drug, and have employed it with successful results in the treatment of incontinence of urine. Max made use of a tincture prepared by maceration of 200 parts of the drug in 1000 parts of alcohol at 80°. According to the age of the patient he gives daily doses of from 20 to 50 drops of this tincture, and has found that it has always been well supported. Out of eleven cases which he reports, nine more or less decisive successes are to be found. Burvenich, out of thirty-three cases, has obtained an excellent result in eleven, fairly satisfactory in ten, and but little marked in twelve. In those cases in which the good effects were produced these results appeared after five or six days' treatment, although in some cases it was necessary to wait for a month before any effect was evident. As to the mode of action of this remedy, the authors state that it produces no sensation or no appreciable phenomena, as seen in experimenting upon themselves; but since in one of their cases, that of a man 79 years of age, suffering from incomplete paralysis of the bladder, without stricture or hypertrophy of the prostate, tincture of rhus greatly facilitated the capability of power of micturition, and the authors believe that it acts as a tonic to the walls of the bladder.

EFFECTS OF EXPOSURE OF THE INTESTINES.

At the November meeting of the Berlin Obstetrical and Gynæcological Society, Professor Olshausen read a communication on a hitherto unrecognized cause of death after laparotomy where intestine has been allowed to lie outside the abdominal wall for a prolonged period. In this country, at least, surgeons are careful to prevent prolapse of the intestines. Coils which adhere to a tumor and cannot be at once separated are carefully covered with flat sponges, or with towels wrung out in hot water which often contains an antiseptic compound. As soon as the adherent coils are separated from the tumor, all bleeding points being secured, they are carefully replaced. As soon as the tumor is extracted through the abdominal wound, or, indeed, while it is slipping out of the incision, a broad flat sponge is slipped into the peritoneal cavity to prevent any chance of prolapse, and

to protect the gut from the suture-needles. The abdominal incision is, moreover, always made as short as possible, so as to avoid the sudden escape of coils of intestine. The Germans are less particular about eventration. Dr. Martin, in 1885, publicly recommended the dragging out of a large amount of intestine in cases where the tumor lay deep in the abdominal cavity, and declared that the greater part of the intestinal tract might be left hanging out of the abdomen during the whole operation, so that the surgeon might have plenty of room for manipulating the tumor. "This eventration," said Dr. Martin, "is quite free from danger; I have practised it in at least ninety per cent. of my cases without seeing any evil results." Professor Olshausen was more cautious, and directed attention to certain cases of collapse, often fatal, which followed cases of abdominal section and were not accompanied by symptoms of peritonitis. He concluded that prolonged exposure of the intestines in laparotomy might cause disturbance in the circulation in the walls of the gut, ending in venous stasis and serous infiltration, with ultimate formation of ecchymoses. At the same time the muscular coat is paralyzed, often for several days; if the paralysis does not abate, symptoms of ileus set in. Fatal results of this kind are probably caused by the absorption of decomposing material in the intestinal canal.—*Brit. Med. Journ.*, May 19, 1888.

THE ABSORBABILITY OF VASALINE.

At a recent meeting of the Société de Médecine Pratique, M. LEON PETIT communicated the results of some experiments which had recently been made by MM. Cadeac and Albin Meunier as to the absorption of vasaline and drugs associated with it. The following are his conclusions (*Bull. Méd.*, No. 20, 1888):

1. Vasaline employed in medical doses is completely absorbed and destroyed by the economy.

2. Employed in experimental, immense doses, it also is absorbed, but may be recognized in the blood and urine.

3. Drugs associated with it are always absorbed, but their action is delayed.

These statements met with considerable contradiction in the discussion which followed their announcement, M. BALZER stating that three weeks after the injection of vasaline he had found it unaltered and enclosed within an abscess-sac which had resulted from its injection.

M. ROUSSEL, while not denying that vasaline might enter the circulation, claims that it may be always recognized in the circulating blood in the form of drops in the blood, and it is, therefore, only emulsified.

M. GRANMONT, on the other hand, stated that vasaline had enabled him to employ painlessly injections of peptonate of mercury, and that they never resulted in induration, while the vasaline appeared to him to facilitate the absorption.

THE EARLIEST SYMPTOMS OF HEREDITARY SYPHILIS.

From an examination of the large material at his disposal in the Moscow Foundling Hospital, TH. MÜLLER has endeavored to determine the earliest symptoms characteristic of hereditary syphilis (*Med.-Chirurg. Rundschau*, May 15, 1888). At the outset of his studies he was met by the characteristic peculiarity of hereditary syphilis seen in the manifold forms of cutaneous affections, and of complications in other organs, under which hereditary syphilis may appear. In one thousand cases of hereditary syphilis, in seventy-four per cent. there were cutaneous papules and mucous patches; in seventy per cent., labial and oral ulcers; in fifty-eight per cent., rhinitis; in twenty-five per cent., pemphigus. Most of the children with hereditary syphilis were thin and atrophic and ill developed. In sixty-four per cent. the disease evidenced itself in one month, in twenty-two per cent. in two months. The earlier symptoms of hereditary syphilis are rhinitis and pemphigus, although these two forms of disease are not at the same time the most frequent symptoms, since rhinitis, as already mentioned, only occurs in about fifty-eight per cent. of the cases. Absolutely characteristic symptoms of hereditary syphilis are ulcers in the angle of the mouth, which do not heal after cauterization, but which extend in their ravages, and in syphilitic children consist of moist, flat, readily ulcerating papules. Another unmistakable diagnostic symptom of hereditary syphilis is the syphilitic pseudo-paralysis of the extremities. This symptom appeared in seven per cent. of his cases, and was the earliest symptom in but four per cent. That this symptom should be diagnostic of syphilis it is, however, necessary that osteo-chondritis of the epiphyses should be excluded,—the positive points in the diagnosis of syph-

ilitic paralysis being painful swelling of the epiphyses, pain produced on motion, while the power of contraction and sensibility of the skin of the extremities are normal.

WASTING OF THE MUSCLES OF THE CHEST IN PHTHISIS.

According to the Paris correspondent of the *British Medical Journal*, June 2, 1888, Dr. F. Bompard has lately made an interesting communication to the Société de Médecine of Bordeaux on atrophy of the thorax in phthisis. The following is a summary of his conclusions: 1. Muscular atrophy is frequent in tuberculous subjects; 2. It is met with in the neighborhood of pulmonary lesions, and specially at the apex of the thorax; 3. It presents the following characters: (*a*) diminution of volume; (*b*) subsidence of prominences; (*c*) exaggeration of hollows; (*d*) diminution of strength; (*e*) diminution of electrical contractility; 4. It may be an early symptom; 5. It is sometimes accompanied by sharp pains in the muscles which are undergoing atrophy; 6. It constitutes a complication of pulmonary phthisis in augmenting the difficulty of breathing, and in this manner contributes to hasten the progress of the disease. It is, therefore, most important to combat this form of muscular atrophy, which is common, particularly at the outset of the disease, when a cure may still be hoped for. For this purpose nothing can be better than chamber gymnastics, already so much recommended by M. Peter in 1879.

KAWA-KAWA.

Dr. N. Weinstein writes to the *Wiener Med. Blätter* of a number of experiments recently made by him with reference to the therapeutic value of kawa-kawa, which Lewin has made a study of. Weinstein has tried the drug in various diseases, using it generally in the following formula:

℞ Extr. kawæ depur., 300 gr.;
Sacch. alb., 45 gr.
M. F. pulv. divid. in dos. x.
S.—One powder to be taken every three hours.

In cases of acute polyarthritis kawa was valuable in quieting the pain, but did not have any effect upon the disease itself.

In emphysema and tuberculosis it acted well upon the dyspnœa; in hydrops its action was diuretic. In healthy kidneys it considerably increased the flow of urine. In gonorrhœa and catarrh of the bladder the drug quieted the nerves of the bladder, but did not affect the gonorrhœal process. Under its use the secretion diminishes greatly, but a cure cannot be looked for without the use of local remedies.

In small doses (1½ grains *ter die*) kawa was given with good results in cases of acute and chronic catarrh of the stomach and in dyspepsia.

PARENCHYMATOUS INJECTION OF STRYCHNINE FOR THE REDUCTION OF ENLARGED SPLEEN.

H. Jacantini has employed the sulphate of strychnine in one-half to three-fourths per cent. solution, of which 20 drops were daily injected into the spleen to reduce the enlargement produced by malaria. According to the author, whose results are reported in the *Deutsche Medizinal-Zeitung* for May 7, 1888, strychnine is to be preferred to ergotin, since the muscular contractions produced by it only gradually occur, while ergotin acts more suddenly and energetically, and therefore is attended with more danger to the integrity of the organ. The author groups the results of his experiments in the following sentences:

1. Parenchymatous injections of strychnine into the spleen lead to the reduction of the volume of the organ when this enlargement is due to chronic malaria.

2. In old chronic cases no increase of temperature is produced.

3. The general condition of the patient becomes gradually improved.

4. The parenchymatous injection of strychnine is free from the inconvenient results which follow the similar employment of other substances.

THE DIURETIC ACTION OF SALICYLIC ACID.

The diuretic action of salicylic acid already claimed by many observers has been confirmed by Dr. Huber (*Med.-Chirurg. Rundschau*, May 1, 1888) in Eichhorst's clinic. In twenty-five cases of articular rheumatism, in whom no diuretic had been previously given, the amount of urine secreted was increased in twenty-one after the administration of salicylic acid, and was greater on the days on which this drug was given than when its use was suspended. In only four cases this result was wanting. In nineteen cases of pleu-

risy in which the drug was given in various amounts, and its administration at different intervals suspended to obtain a clear idea as to the action of this remedy, it would seem that the amount of urine was increased in 80.4 per cent., was reduced in 8.2 per cent., and in 2.3 per cent. was uninfluenced. The average increase of the diuresis amounted to about five hundred and seventy-eight cubic centimetres. It further appeared that the amount of moisture eliminated through the lungs was less when salicylic acid was given than when its use was suspended. The diuretic action which followed the use of sixty grains, given in twenty-four hours, appeared on the first day in its most marked extent, although occasionally there was a gradual increase in the diuresis. In typhoid fever the diuretic power of salicylic acid is reduced, and may even be entirely absent; so, also, in tuberculous affections of the lung, it is likewise not as marked as in other states. In chronic nephritis its use is unfavorable, but it is especially applicable to cases of pleuritic effusion, and in cases with circulatory disturbances.

THE DANGERS OF THE EMPLOYMENT OF QUININE AND OF SALICYLATE OF SODIUM IN THE TREATMENT OF TYPHOID FEVER.

PROFESSOR JACCOUD, in the *Journal de Médecine* for May 13, 1888, calls attention to an important fact which should be always borne in mind in the treatment of typhoid fever. As is well known, this disease is liable to severe cerebral complications, constituting what is ordinarily spoken of as delirium. Although the author states that there are seven species of delirium which may be recognized during the course of typhoid fever, there is one which should be especially recognized, since its recognition should permit of its prevention. This form he describes as "therapeutic delirium," since its cause is to be found in the treatment itself. Delirium, according to Jaccoud, may be developed under the influence of either sulphate of quinine or salicylate of sodium in a large dose, or even under the action of moderate doses too often repeated. The tendency is apt to be present to attribute a delirium to the intensity of the typhoid disease, and one is apt in a case of a delirious typhoid fever patient to increase the dose of antipyretics. Here, according to the author, there is the greatest risk of actually increasing the cause of the delirium, and the treatment will only hasten the fatal termination of the case. Therefore he concludes that in a case of delirium occurring in typhoid fever, if the antipyretic treatment is followed by an increase in the severity of the delirium, this method of treatment should be immediately suspended.

LIQUEFIED CHLORIDE OF METHYL AS A LOCAL ANÆSTHETIC.

At a recent meeting of the Société de Biologie, M. GALLIPPE (*Bulletin Médical*, No. xi., 1888) stated that for the last two years he had been employing liquefied chloride of methyl, dissolved in ether, by means of a hair pencil or a medicine-dropper, as a local anæsthetic, with the best results. By its aid he has been able to practise section of urethral strictures, open abscesses, incise the skin, and even draw teeth, without the experience of the least pain by the patient. In the latter case the only difficulty is experienced in the extraction of the last molars of the upper and lower jaws. Sometimes he has found sloughing of the mucous membrane to follow as the result of the application of the chloride of methyl, but this is rarely the case, and when it does occur is but superficial. In acute periostitis the application of chloride of methyl is often painful by implicating the neighboring teeth, and the anæsthesia is obtained with difficulty, but nevertheless the pain of the extraction of the teeth is greatly reduced. He has also employed it in opening alveolar abscesses and in various operations within the mouth. Finally, he claims that the hemorrhage, which is often troublesome after the extraction of teeth or operations upon the mouth, is really controlled by the application of liquefied chloride of methyl.

HYOSCINE.

DR. BUDDEE has recently published his inaugural thesis on the action of hyoscine, his results in the main confirming those of Erb and other authorities, as already laid before the readers of the GAZETTE. Buddee (*Deutsche Med. Wochenschrift*, May 1, 1888) finds that hyoscine is more active than hyoscyamine. He has employed it in the form of the iodide of hyoscine, administered subcutaneously in solutions of one-tenth of one per cent, giving to children $\frac{1}{300}$ grain and to adults $\frac{1}{100}$ grain. His results were that the remedy is without any direct action on muscular spasm

and in controlling the movements of chorea and in whooping-cough; as a hypnotic in tabes its action was but slight. Partial success followed his employment of this substance in the treatment of the night-sweats of phthisis and in lead colic. The most active effects followed the employment of hyoscine in paralysis agitans, and alcoholic and senile tremor. In these affections hyoscine was most favorable in producing sleep, often in cases where other hypnotics had entirely failed or only had partially succeeded. On tremor its action is not permanent. The most constant after-effect of hyoscine was the constant feeling of fatigue which followed its employment, together with occasional motes before the eyes, dizziness, dryness in the mouth and pharynx, and thirst, dilatation of the pupils, and delirium. In an adult even as much as $\frac{1}{100}$ grain of hyoscine has in his hands produced extremely unpleasant results, while this amount has been given to children without producing any disagreeable results. The largest quantity which he gave to an adult was about $\frac{1}{80}$ grain, and this produced no after-effects. If hyoscine is given for a considerable time tolerance of the remedy is acquired, and the doses then have to be increased to produce their characteristic effects.

HYDRASTIS CANADENSIS.

From a large number of clinical observations and experiments made on animals with the root of hydrastis canadensis, GIVOPISZEW arrives at the following conclusions (*Bull. Gén. de Thérap.*, No. 8, 1888):

1. An aqueous extract, taken even in large quantity, produces no toxic effects in warm-blooded animals.

2. It produces always a reduction of the blood-pressure without any preliminary increase.

3. It always produces in rabbits contractions of the uterine body and horns. The author further noted that under the influence of a watery extract of hydrastis canadensis the uterine contractions are most intense in cases of advanced pregnancy or soon after delivery, while the most feeble contractions occur in a virgin uterus after its use.

4. Large quantities of this extract may produce premature delivery in the second half of pregnancy.

As the result of his clinical experiments the author gives the following *résumé*:

1. Hydrastis canadensis is an excellent measure for combating uterine hemorrhages due to inflammations or displacements of this organ, as well as the hemorrhages occurring at the menopause and in cases of menorrhagia.

2. The uterine contractions produced by hydrastis canadensis are less intense than those produced by ergot.

3. Its employment produces no disturbance in the organism, never, even when taken for a long time, producing any gastro-intestinal troubles, and even seeming to ameliorate dyspepsia when present.

MERCURIC ALANINATE.

Mercuric alaninate has been prepared by Dr. R. DeLuca (*La Reforma Medica*) by dissolving 1 part of alanin in 20 parts of distilled water, heating to boiling, saturating with mercuric oxide, filtering, evaporating, and crystallizing. His results have been analyzed by MR. JOHN M. MAISCH, and published in the *American Journ. of Pharm.*, June, 1888. The compound is in whitish microscopic needles, grouped in crosses and tufts, and soluble in three parts of water, the solution being colorless, and permanent on exposure to air and light. In dilute solutions it will not coagulate albumen; in concentrated solutions its coagulating power is limited to its causing a cloudiness of that part of the liquid with which it comes immediately in contact. In other respects it has the general properties of other salts of mercury. Preliminary experiments on animals showed that the compound was not very poisonous. On his patients Dr. DeLuca used it in solutions of one fifteenth, one-eighth, and one-sixth grain to sixteen drops of distilled water, both for internal use and for injections, subcutaneous or intermuscular. The daily quantity used on each adult patient was from one-twelfth to one-sixth grain. The average number of days of treatment for each of the twenty patients was 37.02; average number of injections to each patient, 27.7; average age of patients, 23.2 years. All the cases were those of secondary syphilitic lesions.

CHLORALHYDROCYANIDE.

According to the statement of MR. JOHN M. MAISCH, in the *American Journ. of Pharmacy*, June, 1888, chloralcyanhydrin, or chloralhydrocyanide, was obtained in 1872 by Hagemann, and by Pinner and Bischoff, by

treating chloral with anhydrous hydrocyanic acid at an elevated temperature. A ready method for preparing this compound was given by Pinner (*Berichte*, 1884, p. 1997), and consists in dissolving chloral hydrate in a ten or twelve per cent. solution of hydrocyanic acid, obtained from potassium ferrocyanide, equal in weight to that of the chloral hydrate; the solution is set aside for twenty-four hours, then for several hours digested, using a reversed condenser, and finally evaporated on the water-bath. It crystallizes from water or carbon disulphide in thin white rhombic plates, melts at 61° C., boils with some decomposition between 215° and 220° C., has an odor recalling that of hydrocyanic acid and chloral, and is readily soluble in water, alcohol, and ether. Its composition is represented by the formulas $C_3H_2Cl_3NO$, or $CCl_3.CH(OH).CN$, and it is the nitrite of trichlorolactic acid, this acid being generated by strong hydrochloric acid. The solution in distilled water remains unchanged for some length of time, and does not produce a precipitate with silver nitrate, except after heating, when AgCl is deposited. Alkalies decompose the compound, yielding chloroform, hydrocyanic acid, and formic acid. The compound has been recommended as a substitute for hydrocyanic acid, of which it yields 15.5 per cent.; or 6.452 parts of chloralcyanhydrin correspond to 1 part HCy. 1.29 gramme chloralcyanhydrin dissolved in 9 grammes distilled water furnishes a solution corresponding in strength to the officinal two per cent. hydrocyanic acid; and a solution of .645 gramme in 100 grammes of water corresponds in strength to a bitter almond-water with $\frac{1}{10}$ per cent. HCy.

OXYNAPHTOIC ACID.

Oxynaphtoic acid has been recommended as a valuable disinfectant. Eller, who first prepared this compound twenty years ago, named it carbonaphtholic acid. Subsequently L. Schaffer (*Annalen*, 1869, vol. clii. p. 291) distinguished the α- and β-acids, of which the former is colored blue, but the latter purplish black by ferric chloride. R. Schmitz in 1884 (*Berichte*, 1885, p. 204) had a process patented for the manufacture of carbonaphtholic or oxynaphtoic acids, which consisted in treating sodium naphthol with carbonic acid under pressure, and heating to between 120° and 140° C. Of the various compounds which may thus be obtained, the acid is now prepared on a large scale, and has been ascertained to possess valuable disinfectant properties.

Messrs. Helbig and Lubbert (*Les Nouveaux Remèdes*, May 8, 1888) have recently studied the antiseptic properties of oxynaphtoic acid. This substance, of which the formula is $C_{11}H_8O_3$, is prepared by causing carbonic acid to act under pressure at a temperature of 120° to 140° C. on an alkaline salt of naphthol. By this process colorless crystals are obtained in the form of fine needles, which dissolve with difficulty in cold water (only 1 part in 30,000), but is soluble to the extent of ten per cent. in alcohol and ether. The solutions of the pure acids remain unaltered on exposure, but those of the crude acids turn yellow and red. The odor recalls that of naphthol. When inhaled it causes sneezing. Warmed carefully it volatilizes without decomposing. According to the authors the antiseptic properties of this body are superior to those of salicylic acid. Comparing it with the latter, they state that if three drachms of fresh blood are shaken up with a few grains of salicylic acid, putrefaction is not prevented; but if oxynaphtoic acid is substituted, the mixture may be kept for several weeks without alteration. To the extent of one per cent. this acid in powder will preserve urine, meat extracts, and various soups without any alteration. Phosphate of sodium increases the solubility of this acid in water, and a one per cent. solution will preserve substances, such as fish, for months. The presence of albumen and gelatin in no amount reduces this antiseptic power, and mixed with putrid liquids it rapidly arrests their offensive odor. Unfortunately, on account of its poisonous properties, it cannot be used for the preparation of food-stuffs, but it may serve for dressing wounds without more danger than corrosive sublimate or iodoform. In the form of a powder it may be used for the disinfection and deodorization of vessels, such as urinals, sinks, water-closets; for its general adoption it is necessary that it should be brought upon the market in a cheaper form than at present.

AN INSTANTANEOUS CURE OF WHOOPING-COUGH.

Dr. Mohn, according to the *Revue Mensuelle des Maladies de l'Enfance*, May, 1888, claims that he has in a number of cases produced instant and permanent cure of whooping-cough by fumigations with sulphur. His

method of procedure is as follows: In the morning the children are clothed and removed from their sleeping-room, in which are hung all the clothing, toys, and, in fact, everything with which the children are brought in contact. In this room about four ounces of sulphur for every cubic yard of space is ignited, and the sulphurous acid allowed to remain in the room for about five hours. The room is then well aired, and the next evening the child sleeps in a room and bed which has been completely disinfected, and it is said that cure is at once produced. As to whether this will be attained in all cases we do not presume to state.

Reviews.

THE LANGUAGE OF MEDICINE: A MANUAL GIVING THE ORIGIN, ETYMOLOGY, PRONUNCIATION, AND MEANING OF THE TECHNICAL TERMS FOUND IN MEDICAL LITERATURE. By F. R. Campbell, A.M., M.D., Professor of Materia Medica and Therapeutics, Medical Department, Niagara University.
New York: D. Appleton & Co., 1888.

A short time since we had occasion to notice a work upon the prescription. The present volume is much more ambitious and extensive; in fact, it is hard to imagine a more complete treatise upon the subject or subjects enumerated in the title-page than Dr. Campbell has produced. Recognizing as he does the many graduates of to-day, and the many aspirants for medical honors who are quite innocent of any knowledge of Greek or Latin, he has set himself the task of providing a work the study of which will make the way easy to a thorough comprehension of the two languages so far as they are requisite to the medical man. As his ideas of the necessities of the case are by no means contracted, his work is in part a very novel but very convenient Latin and Greek grammar. Though it is impossible in a brief reading to assert that there are any medical terms omitted in the book, yet, leaving out the newcomers, the new technical terms coined yesterday and to-day, we think very few will be found wanting. Each word is given in alphabetical arrangement, with its meaning and derivation. In his rules for the proper accentuation of derived words the author is very thorough, and we will all of us be the wiser and better in some ways for a careful study of the work, which embraces, Part I., "Origin of the Language of Medicine," including chapters on "Historical Sources," "Origin of Words," "Life and Death of Words." Part II., "The Latin Element in the Language of Medicine," with twenty-one chapters. Part III., "The Greek Element in the Language of Medicine," with eight chapters; and, Part IV., "Elements derived from the Modern Languages." This will serve to give some slight idea of the thoroughness with which Dr. Campbell has performed his task. E. W. W.

ACCIDENTS AND EMERGENCIES: A MANUAL OF THE TREATMENT OF SURGICAL AND OTHER INJURIES IN THE ABSENCE OF A PHYSICIAN. By Chas. W. Dulles, M.D., etc. Third edition, revised and enlarged, with new illustrations.
Philadelphia: P. Blakiston, Son & Co., 1012 Walnut Street, 1888.

The appearance of a third edition of this useful little book shows how it has been appreciated. Where a more ambitious and voluminous work would have lain neglected, this easily and quickly read, concise, authoritative production has been of great value to many non-professional people, and all the more so since it never in its advice oversteps the bounds which separate what the laity can do from what the physician alone can do. The natural instinct of humanity in the presence of an emergency is to do something, generally the wrong thing; but, after mastering this little book, the natural instinct will be turned into proper channels and be of vast service.

The number of emergencies which may befall us in life is appalling, as one feels when reading a work of this character, and yet the author has only alluded to the most common. Many situations of peril could easily be imagined by an accomplished novelist, or by the Great American Humorist, for which Dr. Dulles has made no provision, but the average man or woman will find his advice sufficient to tide them, with a clear conscience, over pretty much everything likely to befall them.

From justifiable curiosity the reviewer turned first to "The Bites of Dogs," and read the author's well-known opinion of the true nature of hydrophobia. His guarded statement is, that "some of the most able and careful medical men are of the opinion that most, if not all, cases of so-called hydrophobia are spurious,—that is, they are not hydrophobia at all." In this matter we think that most medical men will agree with the above, even while by no means prepared to deny the existence of hydrophobia as a contagious disease.

The author has so arranged his book that it is easy to find anything wanted. He recommends a careful reading first, then a place for the book, where it will be always at hand and can be referred to at the moment. Especially useful are the directions in regard to poison, where we have a carefully-prepared table of poisons and antidotes. There is also a list of articles suitable for the family medicine-chest. In short, as far as possible, in the space, the author has said everything needed, and the best advice one can give to the anxious is to carefully read Dr. Dulles's book and cultivate a good memory.

E. W. W.

TOILET MEDICINE: A POPULAR SCIENTIFIC MANUAL ON THE CORRECTION OF BODILY DEFECTS, AND THE IMPROVEMENT AND PRESERVATION OF PERSONAL APPEARANCE, TOGETHER WITH FORMULÆ FOR ALL THE SPECIAL PREPARATIONS RECOMMENDED. By Edwin Wooton, B.S.C., etc.
New York: J. H. Vail & Co., 1888.

"To assist in the removal of certain bodily imperfections" is the author's modest endeavor. "If the complaint concerned is not of deep nervous origin it will in every case be removed by the fulfilment of the rules laid down." Now, we are very sure that up to this time science has not discovered a deep nervous origin for very many conditions which the author's formulæ will surely fail to cure, and great light may be thrown upon the unsuspected nervous origin of bow-legs, straight hair, bug-bites, etc., if the book is carefully studied with this idea in view. The author begins at the top, and goes down slowly. To what awful depths he finally descends the reader must find out for himself. In his work he has consulted authorities evidently, but has allowed much of value to escape his mind in composing his book. We have an elaborate treatise on bathing and its manifold applicability. Rules are given for different seasons, for hot and cold, for old and young, for weak and strong, but the temperature of the baths is omitted. "The nails," he remarks, "should never be bitten." He is very positive about this, as about everything, and we grant that in civilized countries implements can be procured to cut and shape them, but what is one to do cast on a desert island without even a pocket-knife?

The slightest abrasion is not too slight for the inevitable advice and lotion. We are told how not to be "skinny," with formula for lotion to prevent skinniness. We have lotions for bug-bites and dog-bites, musquito- and snake-bites. His advice in the matter of "boils," if followed by the patriarch, would have robbed the book of Job of all its pathos. Corns, burns, chilblains, something ready for each. The advice is generally safe, but it might often be better were the author acquainted with his subject. His management of "offensive feet" is an illustration of the fact that his reading might be more extensive even than it is. The victims of the dreadful scourge, which he terms "flabbiness of the face," will derive but little comfort from his advice or his lotion; while for herpes labialis we have a formula, No. 15, which ought to cure something. Zinc, bismuth, starch, iron, silica, alumina, magnesia, chalk, and glycerin are its simple and time-honored ingredients. "Looseness of the skin" seems like looseness of the morals,—somewhat difficult of correction; but, unless it is "of deep seated, nervous origin," it must yield to the "alum lotion," or the tannin lotion, so confidently recommended. Quite serious diseases even are by no means beyond his reach. The pitting of smallpox can be prevented by flexible collodion; while the face, already scarred through ignorance of the above-mentioned heaven-sent boon, can be restored by one or both of the formulæ given.

Obesity and the author have a great struggle. He has read some book, or somebody has told him something about it, and he repeats in his pages what he has misunderstood and remembered. He explains very simply why people are obese, and then unfolds his own method of treatment. It is grand but simple,—utter abstinence from fat, starch, and sugar, in order that the obese person may "eat his own fat;" steadily increasing exercise (he begins, if weak, with two hundred yards, just as if it were tape); and completes the cure with that once famous but now decayed patent remedy, "Antifat."

We are not sure that he does not recommend some lotion for obesity, for the number of his lotions is legion. He exhibits the greatest fertility of invention in their combinations, yet employs the simplest materials. No. 37 is carbonate of soda, chalk, borax, glycerin, and oatmeal-water. This is for "red face." "Red nose" has three formulæ; one is "borax, chalk, juice of bitter almonds, and oatmeal-water." Almost all his formulæ "can be used freely." Many of them could be imbibed without injury.

But if there is one disease in which the author is undoubtedly successful, where he is just right, and fully up with the rapidly-ad-

vancing therapeutics of to-day, it is the "itch." His remedy is sulphur and lard. If one is "thin-skinned," and how many of us are, to our sorrow, we may be cured by a lotion of glycerin, rectified spirits, and water; if old and wretched, "the result of years," a lotion of alum, glycerin, and water will defy the hand of time.

For the hair he fairly bristles with formulæ. For "persistent damp hair" he recommends salt and water used thrice daily. Damp hair is evidently "a deep seated, nervous" thing, for the lotion will only make it damper. "Bilious eyes," "pug-noses," "large ears," are all confidently attacked. The ears (large ones) are "to be trained to lie close to the side of the head." Those who consider large ears a sign of stupidity will be astonished that they can be trained so readily. But we have gone far enough. There is evidently nothing for which a lotion is not useful, even bow-legs. E. W. W.

FUNCTIONAL NERVOUS DISEASES: THEIR CAUSE AND THEIR TREATMENT. By George T. Stephens, M.D., Ph.D.
New York: D. Appleton & Co., 1887.

This memoir, to which the Royal Académie de Médecine of Belgium in the concourse of 1881–1883 awarded the prize, is certainly a very remarkable book,—one which reads more like "Alice in Wonderland" than any medical work that we have met with for a long time. According to the author, almost all of the nervous ills to which flesh is heir are the result of abnormal conditions of the eyes. It has long been recognized that headache and other nervous symptoms may be the result of eye-strain, but we think that the experience of Dr. Stevens in curing 83.6 per cent. of twelve hundred and eighty cases of chronic headache by tinkering at the eyes is unparalleled. We think that there are very few practitioners of medicine whose note-books will show records of twelve hundred and eighty cases of chronic headache, and we congratulate Dr. Stevens upon the extent of his experience. In such cure of headache, however, there is nothing but what can be paralleled by the experience of every neurologist, except the frequency of the optical headache; but when we find that chorea, facial, dorsal, lumbar, crural, intercostal, sciatic, and various other forms of neuralgia, as well as migraine, acute mania, neurasthenia, spinal irritation, vertigo, dyspepsia, dementia, and epilepsy, yield to the magic touch of the little knife that chips the ocular muscles, we can well wonder what is to come next, and Dr. Stevens can hardly complain if we hold our breath from fanning the fame of such a record. It may all be true, but certainly the plan of Scotch juries of giving a temporary verdict of not proven is in order. Much of the book is occupied with a description of the method of investigating the eyes and of rectifying defects. Having no experience or knowledge in regard to practical optics, the reviewer of the volume must pass this portion of it by in silence. The book certainly must receive very careful attention from all neurologists, and, if its claims are made good, the name of Stevens will be indelibly engraved upon the records of the world's benefactors. Probably many of our readers sat under, or are familiar with the teachings of the late Professor Hodge in the University of Pennsylvania, and will remember how, in his thought, the irritable uterus was the centre of all female ills, and how it was a constant joke among the classes that its figure was to be cut upon the tombstone of the professor as a monument to his central idea. The role of the irritable uterus in the mind of Hodge seems to be followed out in the mind of Stevens by the irritable eye. As modern gynæcology has swept on, the irritable uterus has become more and more clearly revealed to be the mere local expression of a general state; is it to happen that in regard to the eye we are to find the local lesion the cause of the general state?

MEDICAL PUBLICATIONS.
Harvard Medical School, 1887.

This volume is evidently made by combining together reprints of the various papers published during 1887 by professors or instructors in the Harvard Medical School. It contains the following memoirs, most of which are no doubt familiar to our readers as having all of them appeared in medical journals:

"The Action of Sulphuric Ether on the Peripheral Nervous System," H. P. Bowditch; "The Anatomy and Physiology of the Recurrent Laryngeal Nerves," Franklin H. H. Hooper; "The Effect of Pure Alcohol on the Reaction-Time, with a Description of a new Chronoscope," John W. Warren; "Notes on Muscular Abnormalities," Thomas Dwight; "The Range of Variation of the Human Shoulder-Blade," Thomas Dwight; "The Process of Repair after Resection of the Intestine," J. Collins Warren; "The Experimental Value of the Dowse Splint," E. G. Brackett; "Fracture of the Spine: its Im-

mediate Treatment by Rectification of the Deformity and Fixation by Plaster-of-Paris Jacket," Herbert L. Burrell; "The Artificial Feeding of Infants," T. M. Rotch; "An Experimental Research upon Rabies," Harold C. Ernst.

We commend the enterprise of Harvard, and think that the University of Pennsylvania and some other of our leading colleges would do well to follow the example which has been set. As, however, a medical journal has been started immediately under the auspices of the faculty of the University of Pennsylvania, we suppose that we must look to it for any original results obtained by members of that august body.

Correspondence.

BERLIN.

(From our Special Correspondent.)

In the second session of the Congress (see June issue), the question brought up for discussion was "Alcohol as a Remedy." Professor Binz, one of the greatest lights in pharmacology in Germany, opened the debate by giving a review, in a most classical manner, of the various uses to which alcohol is put in therapeutics. In judging the remedial value of alcohol the question which first came to his mind was the following: Can alcohol be rightly considered an excitant?

Claude Bernard brought concentrated alcohol into the stomachs of dogs, and noticed a marked decrease of the secretion both of the stomach and pancreas. When, however, the alcohol was diluted with water, these secretions were seen to increase.

Parkes and Wollowicz found that alcohol caused more rapid and intense contraction of the left ventricle: its work for a time would be increased, and its moments of rest shorter. The blood flowed with greater freedom through the capillaries.

The results of the experiments of Albertoni and Lussana, and also those of Fraser, agree with the above. In small doses the drug increased the arterial pressure, in large doses the result was precisely the opposite. Binz, in experiments upon dogs, observed that if 1½ fluidrachms of absolute alcohol with 2 or 2½ fluidrachms of water were introduced into the empty stomach, the crural pulse would, for a time, become more full and rapid. Regarding the respiration, Zuntz has shown that small doses of alcohol increase the respirations of a healthy man. Geppert also observed that the increase of respirations which followed small doses of alcohol was, on an average, seven per cent.

The second question which must be carefully considered is the nutritive value of alcohol; this, of course, only in reference to its respiratory nutritive value, not of its "building-up" power. Bodländer found that when given in moderate doses alcohol was eliminated by the lungs and kidneys, and also very slightly through the skin; but not at all by the bowels. Altogether three per cent. could be traced.

The only thing which alcohol can do is to burn up into carbonic acid, gas and water, while in the system. The burning, however, produces heat. This is valuable, and acts as a power by which the system may be temporarily stimulated and strengthened. Without heat life cannot exist. The heat-producing value of alcohol has been proved by Zuntz and Geppert: 20 to 75 cubic centimetres taken in the form of cognac, port wine, sparkling wine, or in water, by a healthy adult who is not accustomed to the use of spirits, affects but slightly the quantity of oxygen absorbed, either one way or the other; neither does it influence the elimination of carbonic acid gas. The most important result of these experiments is the fact that shows that there is no change in the amount of oxygen consumed. We, then, must conclude that alcohol does not increase oxidation, as its opposers have always so steadfastly claimed, and it therefore does not produce a more rapid consuming of the organism, but rather acts as a fuel, by means of which the normal heat of the body is maintained.

A part of the oxygen which would be occupied in oxidizing other material is taken to burn up the alcohol consumed, and therefore the material which would have been otherwise consumed is for a time saved. Above all, albumen is saved by alcohol. It might, however, now be said that only such substances can be rightly considered as nutritives which promote the heat of the body without producing any injurious accompanying symptoms. It is, however, known that alcohol in large doses increases the decomposition of albumen, and therefore in cases of serious illness tends to hasten a fatal result rather than to retard it. To this may be answered, that these experiments were made upon healthy men and dogs, and what may be true in such cases need not be so in cases

suffering from fever. This is clearly seen by the tolerance for alcohol showed by a fevered brain. Doses which would produce complete narcosis in a healthy man will only cause a pleasant excitement in a fever patient. What would be a very large dose in one case is only a moderate dose in the other. Such a dose always lessens the decomposition of albumen. The fever itself tends greatly to decompose albumen, and alcohol in strong doses undoubtedly checks fever for the time being. The dose, therefore, for alcohol depends entirely upon circumstances. Small doses, frequently repeated, which are given on account of their nutritive value, even in cases of fever, do not, of course, produce any decomposition of albumen.

A third, and also very important property of alcohol, is its power to reduce the heat of the body under certain circumstances. In healthy adults small doses, especially if given in concentrated form, will cause a plainly perceptible feeling of increase of warmth in the stomach, and later the same feeling in the skin. There is, however, no change of the temperature of the rectum further than the normal fluctuations. Moderate doses of about fl℥i to fl℥iii, which, however, do not produce the least symptoms of intoxication, will cause a fall of temperature of .3° to .6° C.; this also occurred when the experiment was made while the temperature was rising.

Habitual use of alcohol will deaden the heat-reducing property until it becomes no longer observable. Narcotic doses of alcohol reduce the temperature several degrees, and will keep it reduced for several hours. All the causes for this fall of temperature are not yet clearly understood. One cause is certainly the enlargement of the blood-vessels of the skin, which gives rise to a greater radiation of heat.

All the above-mentioned properties of alcohol show that it is a drug of great value in therapeutics. But all the good qualities of alcohol are only recognizable in sickness. A healthy man does not need any excitant for the heart, circulation, respiration, stomach, or bowels; a person who is well nourished, as it is, does not require stimulants; a man who is not suffering from fever does not require a reduction of bodily heat. When healthy adults take spirits the only benefit derived is a satisfaction of the appetite, or they are claimed to act as a most refreshing stimulant after severe physical exertion. In both cases, however, moderation, or, in other words, *temperance*, is of absolute importance. And this not only applies to the consuming of "so-called" spirits. An habitual beer-drinker is an alcoholist as much as an habitual whiskey-drinker is. Viewed from this point, it is the duty of every physician to strongly support all temperance societies or bodies, but the anti-alcoholic feeling should not cause its rejection as a valuable remedy in therapeutics.

We have above given a fairly complete account of Binz's argument. The rest of the debate did not bring up anything new or of especial value. Professor von Jaksch, the second debater, confirmed, from clinical observation, those symptoms which Binz had proved theoretically to indicate the use of alcohol. One point deserves especial mention: Von Jaksch practised giving alcohol in pretty large doses in cases of diphtheria, and states as his belief that symptoms of collapse, cyanosis, etc., would be far more rarely met with were the drug used more commonly in this disease. In typhoid fever he considers large doses of alcohol, in conjunction with cold baths, to be very valuable, especially with reference to its nutritive property in such cases. Alcohol-therapy is also of very great importance in septic diseases. Von Jaksch ascribes but little value to the antipyretic property of alcohol. Its action upon the digestion was apparent under certain circumstances, but if any result is looked for from alcohol in this direction there must not exist any severe anatomical lesions of the stomach, or any severe disturbance of the secretory organs of the stomach.

In certain cases, especially in neurasthenia, the hypnotic action of alcohol may be valuable. In such cases its administration in the form of beer is most advisable. Regarding the most practicable and efficacious form of administering alcohol in other cases, Von Jaksch advises the use of light claret or white wine. If it is to act as an excitant, then drinks containing a high percentage of alcohol should be given.

In the discussion it was further strongly expressed that all possible caution should be observed in every case as regards the size of the dose, as the tolerance for alcohol is different in almost every individual.

Finally, in the third session of the Congress, the subject brought up for discussion was "The Prevention and Treatment of Asiatic Cholera." We cannot here go into the subject as it was opened by Dr. Pfeiffer, of Wiesbaden, who spoke learnedly of the etio-

logical side of the question, and of the prophylactic measures against cholera.

Pfeiffer is one of the most convinced pupils of Dr. Koch's school, and strongly adheres to the contagious theory, and his views and theories were based upon this. What he said was, in the main, the same which was said at the International Hygienic Congress held in Vienna.

The second debater took up the subject of the therapeutics of cholera. This was Professor Cantani, of Naples. Cantani's name has recently become well known in connection with the therapeutics of cholera, especially on account of his vast personal experiences.

The method of treatment proposed by Cantani is not wholly unknown. Three principal points are held in view: 1. Stoppage of the increase of the bacteriæ in the intestinal canal. 2. Freeing the system and blood from the chemical cholera poison caused by the bacteriæ, and rendering the same harmless. 3. Stoppage of the thickening of the blood.

The first two indications Cantani endeavors to correct by means of hot, fermenting enteroclysis; that is to say, he gives frequent injections of a hot solution (38° to 40° C.) of five to twenty grammes (75–300 grs.) of tannic acid in one and a half or two quarts of water, usually with the addition of twenty to thirty drops of laudanum.

The third indication, and also partly the second, answers to hypodermoclysis; that is, subcutaneous infusions of sterilized hot water of about 38° or 40° C., in quantities one pint to one quart at a time, the water to contain three per cent. of sodium carbonate and four per cent. of common salt. Both methods assist each, and act most beneficially. The hot fermenting enteroclysis is especially adaptable during the first stages of the disease during the premonitory diarrhœa. Hypodermoclysis is always valuable, even in advanced stages. Cantani had the opportunity of testing its virtues in a large number of cases during the recent epidemic in Naples, as did also a number of other Italian physicians.

Besides the three sessions of which I have given as brief an account as possible, the Congress held four other meetings, in which numerous articles of interest were read or discussed, and concerning which I am, unfortunately, not able to give you an account, as I have already encroached greatly upon your valuable space.

PARIS.

(From our Special Correspondent.)

Hydrofluoric acid, as a cure for consumption, a short time since, was so decidedly the vogue that several physicians claimed priority for its introduction, and many ingenious appliances have been invented for its exhibition. But the recent favorite's downfall threatens to be so speedy that soon there will be none so poor in therapeutics as to do it the reverence of a trial. Last month several practitioners gave it as their opinion, based upon clinical experience, that at best hydrofluoric acid is a tolerable appetizer, and as such may help in the successful issue of a treatment founded upon some more trusty medication. And now, two eminent biologists and bacteriologists, Drs. J. Grancher and P. Chautard, have published the results of careful technical investigations tending to show that the effects of hydrofluoric acid inhalations are very slight indeed, whether the tuberculous bacilli are in the economy or in appropriate cultivation liquids. Rabbits were the animals taken for the experiments. Without going into all the particulars, minutely described, it is not out of place to here give the main features of the tests to show what value attaches to the conclusions arrived at. The animals under trial received the inhalations in a large twenty-gallon air-tight glass bell, provided with the necessary tubes, under which they were placed, cage and all, two hours a day, while a simple but effective aspirator enabled the operator to exactly measure the quantity of artificial atmosphere circulated under the bell. In the first experiment six rabbits were inoculated, on January 6, with one cubic centimetre of a certain tuberculosis bouillon, and two of their number were kept aside without any sort of treatment, to serve as means of comparison, or "witnesses," as the term is. The four others received inhalations of air bubbled through a ten per cent. solution of hydrofluoric acid. The result was that the two witnesses died the same day,—that is, on January 29; while of the four treated, two died on the 27th, one on the 29th, and one on the 30th. The post-mortem showed no appreciable difference between the two classes of victims to science. A second experiment was next made in the same way with air run through forty and fifty per cent. solutions of acid, six rabbits being, on January 30, inoculated with another bouillon, and two being kept as witnesses. The two last named died on February 14. The two rabbits treated

with forty per cent. acid died on the 12th and 14th, and the two that inhaled the atmosphere run through sixty per cent. acid died on the 13th and 14th. At the post-mortem the six rabbits presented exactly the same lesions. The uselessness of the inhalations thus proved to be but too plainly evident. Yet a doubt remained because the infection had been introduced direct into the blood, while the medicated vapors could only come into contact with the lung-tissues. To remove the uncertainty various tuberculous bouillons were properly diluted, and through the liquors air impregnated with acid vapors was run in known quantities and with due precautions. Specimens of each bouillon having been kept aside, eight rabbits were inoculated in pairs, one of each couple receiving the plain infectious liquid and the other the medicated. The tuberculous bouillons did lose some of their virulence, but not much, the average time elapsing between inoculation and death being nineteen days for the rabbits which had received the plain infectious liquid, and twenty-two for those who got the same medicated with air containing ten, twenty, forty, and sixty per cent. of hydrofluoric acid. And, finally, acid of sixty, eighty, and one hundred per cent. was used, with no other effect than of retarding the death of the inoculated animals, but the tuberculous bacilli were not destroyed, although all the glass apparatus employed was deeply corroded, notwithstanding its thick paraffine coating. In conclusion, the investigators think their experiments scarcely agree with the observations published on the favorable results obtained in human medicine, unless the indirect action of hydrofluoric acid on secretions and nutrition have a beneficent influence on the progress of tuberculosis in man. As to the destruction of the bacilli in the economy, they believe it is hardly reasonable to hope to attain in the lungs of a patient a result unobtainable in a glass apparatus.

After establishing the *harmlessness of nickel* compounds, by experiments related in the THERAPEUTIC GAZETTE of last February, page 135, Professor Riche has now gone one step further, and made another series of investigations to ascertain the relative behavior of nickel, as compared with other metals and familiar alloys, when left in contact with various liquids and metallic solutions. Copper, bronze, brass, and German-silver—an alloy of zinc, copper, and nickel—were thus compared, and, so far as chemicals are concerned, nickel proved much less readily attacked by ammonia, sodium chloride and carbonate than the other metals, under like conditions. But the difference became more striking when organic substances, such as are used in domestic economy, were left in contact with the metals. For instance, it was observed that melted butter may be kept for several days in a nickel capsule exposed to the air without impairing its polish or dissolving more than mere traces of the metal. The same was true of oil at ordinary temperature, even after a month's contact. It is scarcely necessary to make more than a passing allusion to the behavior of copper and its alloys when in contact with fatty substances, a few hours sufficing to develop an intense green coloration. Nickel proved also reasonably proof against the action of salt water. To give exact figures, a capsule weighing one hundred and eighty grammes was partly filled with a solution of eighty grammes of sodium chloride in two hundred of water, and the whole boiled for fifty-six hours, altogether during four days, the evaporated water being replaced, and the liquid always remaining in the capsule. In the end the metal was found to have been tarnished, but only twenty-five milligrammes—less than half a grain—of nickel proved to have been dissolved out. Here, again, it is unnecessary to speak of what would have happened with a copper or brass vessel under like circumstances. On the other hand, it is admitted by Professor Riche, vegetable acids readily attack nickel, while the metal will reasonably resist the action of caustic and carbonated alkalies, even at fusing temperatures. In conclusion, nickel utensils are recommended for cooking in general, and in pharmacy and chemistry for heating neutral and alkaline liquids.

Powdered talc in diarrhœa was recommended at one of the last meetings of the Hospitals' Medical Society by Dr. Debove, especially for tuberculous patients. The powder is chemically inert, but its mechanical action is very efficient when given in sufficient quantities. He found patients could take as much as six hundred grammes (twenty ounces) in a day, but two hundred are enough for all purposes. The fine powder is to be administered in two pints of milk, the mixture requiring very thorough shaking. With tuberculous patients suffering from obstinate diarrhœa of several months' standing the success has been in all cases complete, obstinate constipation often resulting. But as the diarrhœa of phthisics is of organic origin, and caused by intestinal ulcerations, the exhibi-

tion of talc should be persevered in, in smaller doses, however. Another advantage of the medication is that it allows the patients to absorb at the same time other substances otherwise incompatible with their condition. Milk, for instance, which consumptives have to avoid, because it produces hyperpurgation, could easily be tolerated. The same was the case with oils and other fatty substances. The remedy may not be as acceptable in all cases of diarrhœa, the ensuing constipation being of course a disadvantage. But with consumptives, who are under the influence of an organic disorder necessarily reproducing diarrhœa, the after-effect is rather beneficial; and, finally, the elimination of talc is very speedy, as may be ascertained from the color of the stools. At any rate, it is a very light, inert, and harmless powder, from which no trouble need be apprehended.

A question of French has been decided by the Academy of Medicine. A short time since the French premier requested the academy to exactly define the pharmaceutical terms "*officinal* and *magistral*," the distinction being of some importance, for administrative reasons unnecessary to mention. The academy appointed on the question a committee composed of MM. Planchon, Lefort, Bourgoin, Dujardin-Beaumetz, and Prunier, all shining pharmaceutical lights, and last Tuesday the committee presented a unanimous report, which will, of course, be adopted by the academy, and, consequently, by the administration. As the definition settles a question hitherto very puzzling to foreign readers of French therapeutical and pharmaceutical literature, it is interesting to here relate it. According to the academical committee "*officinal* medicaments are those whose formulas and mode of preparation are given by the Codex, and which, besides, will keep a long time without noticeable alteration. The *magistral* are such medicines as the pharmacist prepares when prescribed, and dispenses immediately, without regard to their keeping properties." Such, it may be remarked, is the usually accepted meaning of the terms in general. But, to be more precise, the committee added: "1. Such medicaments only should be considered *officinal* which keep easily, and whose formula and mode of preparation are mentioned in the Codex, if they are galenical, or whose characters and method of purification and testing are given, if chemical. 2. It does not follow, nevertheless, that all medicaments mentioned in the Codex are necessarily officinal. Potions, ptisans, juleps, etc., are by nature essentially magistral, like all mixtures prescribed by the physician, even when exclusively composed of officinal medicaments. The fact alone of the mixing causes them to become magistral remedies." It is scarcely necessary to point out the different meaning of the word *officinal* in the two languages. In English it is applied to pharmacopœal drugs and medicines. In French it is derived from the word "*officine*," drug-store, and just means store medicines,—that is, kept in stock.

Dr. Duchesne, at a recent meeting of the Society of Practical Medicine, proposed the following formula for a *summer drink for school-children*. It is a slight modification of a formula of his used last summer with success in French schools. The object of the quassine is to impart a slight bitterness, to better quench the thirst and prevent children from drinking more than is healthy for them.

Glycyrrhizin, gr. xvi;
Powdered sugar, gr. xvi;
Bicarbonate of sodium, gr. xii;
Crystallized quassine, gr. $\frac{1}{10}$;
Oil of anise, gtt. $\frac{2}{3}$. M.
For one powder.

This quantity is to be dissolved in one quart of water when wanted for use. The beverage costs here about half a cent a quart. It would not probably cost much more in America. The idea of giving a slightly bitter taste is not a bad one. Should there be any difficulty in procuring the quassine, either gentian or any of the native bitter principles might be substituted.

PARIS, June 20, 1888.

RESORCIN IN ECZEMA.

To the Editors of the THERAPEUTIC GAZETTE:

GENTLEMEN:—I have just read in the June number of the GAZETTE the report of two cases of chronic eczema by M. Schmitz, M.D., of Calvary, Wis. I wish to add my little experience to his, if you think it worthy a space in your valuable journal. I have been using resorcin in epithelioma and eczema squamosum for two years, and in the meetings of last February of the East Line Medical Association of Texas I urged the members to give this remedy a fair trial and report cases. Some are now using it, and will report their successes or failures soon. I will give you the outlines of one case of

eczema squamosum treated with resorcin. Last year a young man applied to me who had been treated for four or five years by the best doctors of our country. I determined to try resorcin. I found a large scaly patch in the bend of each elbow. It was almost keeping him from his vocation so great was the itching, and it was worse at night. I pulled off the scaly epithelium with forceps, then applied Merck's preparation of resorcin, rubbing it in well,—the dry powder. The next day he reported at my office. I found a large encrustation, perfectly black, and somewhat tender around the edges, but no itching since the application. The other arm was treated the same way, and ever since (eighteen months) there has been no return of the disease.

I believe that you have to destroy the deeper tissues of the skin to make a successful cure of chronic eczema. I could report many cases of various kinds treated with this remedy, but I forbear just now. I hope the profession will give the new remedy a fair trial. I believe it to be the best remedy we have for epitheliomas applied locally in the dry powder.

Respectfully,

F. E. YOAKUM, M.D.

GREENVILLE, TEX.

QUEBRACHO IN DYSPNŒA.

To the Editors of the THERAPEUTIC GAZETTE:

GENTLEMEN:—Some months ago my attention was drawn by articles in the GAZETTE to the value of quebracho in dyspnœa. I obtained some of the fluid and solid extracts, and have since used it with much satisfaction. One case of periodic asthma, in a French-Canadian girl of 15, employed in the spinning department of a worsted-mill, seems to me worthy of special notice. Under belladonna and bromides her attacks were relieved so long as she stayed out of the mill, but immediately returned on going back to work. Through a misunderstanding she went to work while taking quebracho, and to my surprise has continued to work free from the asthma so long as she takes the medicine. Her trouble, however, returns so soon as she omits her usual dose (♏ xxx. t. d.). I do not attempt to explain *how* the remedy acts in this case.

I have also been much pleased at the effect of quebracho in the pneumonia of old people. I give it now almost as a matter of routine, and fully believe it has saved the lives of three persons of over 70 years of age and feeble constitutions; exactly such cases, indeed, as I had come to believe inevitably fatal. One must not, however, rely on it alone, but should administer the other usual remedies in such cases.

Finding that quebracho is little known among my friends, I venture to add my mite of evidence in its favor, fully believing that those who once try it in proper cases will get thereby more favorable results than by any other method.

Yours respectfully,

PHILIP KITTREDGE TAYLOR, M.D.

WAKEFIELD, RHODE ISLAND.

PUERPERAL MEASLES.

To the Editors of the THERAPEUTIC GAZETTE:

GENTLEMEN:—February 26 last I was called to see Mrs. P., æt. 18, and found a well-developed case of measles. The eruption was over the face, neck, and chest, and typical. Perceiving that she was well along in pregnancy, I learned that she was then having slight "pains." Early next morning, responding to a second call, I arrived in time to deliver her of a fine boy, and found the eruption of measles extending over the entire surface of the body. She made a good recovery. Though the event occurred during an epidemic of measles, yet the child did not contract the disease at that or any subsequent time though repeatedly exposed.

F. W. GODING, M.D.

RUTLAND, ILL., June 18, 1888.

Notes and Queries.

ALCOHOLIC NEURITIS.

A new contribution to the histology of peripheral neuritis has been made by PROFESSOR EICHHORST, of Zurich. The case he describes is that of an habitual drunkard, who died from alcoholic paralysis after six weeks' illness. The symptoms began with inco-ordination, and then paralysis of the legs, followed by paralysis of the extensors of the wrist, with rapid wasting of the paralyzed muscles, tenderness of the muscles, some cutaneous anæsthesia, abolition of reflexes, and ultimately vesical and rectal paralysis. At the post-mortem examination no gross lesions could be seen in the nerve-centres.

The brain was not examined microscopically, but the cord showed some asymmetry in the anterior cornua, and some recent hemorrhages in the gray matter in the dorsal region, with thickening of the blood-vessels,—changes which did not suffice to explain the general paralysis. The spinal nerve-roots were found to be normal. The tibial and radial nerves, on the other hand, were found to be profoundly diseased, osmic acid preparations showing very extensive degeneration and atrophy, with absence of the axis cylinders in a large proportion of the nerve-fibres. Tracing the nerves to their peripheral terminations in the muscles, Professor Eichhorst found the lesions to be more advanced and complete there than in the nerve-trunks. Indeed, within a muscle there was not a single normal nerve-fibre. Nor were the lesions of these intra-muscular nerves limited to degeneration, as in the nerve-trunks; but each degenerated fibre was surrounded by numerous laminæ of connective tissue produced from the endoneurium and perineurium. It would seem as if the existence of the degenerate nerve-substance had excited inflammatory change around it. Another remarkable fact was that the muscular fibres did not exhibit the trophic changes usually met with in neuritis, although in the vicinity of the diseased nerve-endings the muscular fibres were atrophied apparently secondary to the perineurial lesion. Professor Eichhorst, therefore, proposes to term the condition "neuritis fascians," as denoting what he considers to be the essential feature of the change,—viz., the inflammation of the nerve-sheath, and the extension therefrom to the interstitial tissue of the muscles. He points out that similar changes in muscles have been described by Fraenkel in phthisis, and by Eisenlohr in infantile paralysis, the former raising the question whether the ensheathing bands of connective tissue arose from the blood-vessels or the neurilemma. Eichhorst does not infer that neuritis fascians is special to alcoholic paralysis, but that it is an important feature of it. Certainly the clinical phenomena of "peripheral neuritis" harmonize with the occurrence of lesions within the muscles themselves, and we may direct the attention of pathologists to the more precise determination of such lesions, which in all probability precede the degeneration of fibres observed in the nerve-trunks. The latter change has been amply studied, but the former, and, indeed, the essential change, has not as yet been much dealt with. —*Lancet*, May 19, 1888.

ATROPINE-POISONING SUCCESSFULLY TREATED WITH AMYL-NITRITE.

In the *Virginia Medical Monthly* for May, 1888, Dr. Louis G. Pedigo reports the case of a man, 40 years of age, in whom ½ grain of sulphate of atropine was through an error injected beneath the skin at one dose. He soon passed into a case of profound stupor and unconsciousness, with all the usual symptoms of belladonna-poisoning. The treatment employed first consisted in the use of alcohol, strychnine, and morphine hypodermically, with the use of artificial respiration. The pulse became feebler and the patient was rapidly sinking. At this time the use of nitrite of amyl was suggested, and was administered by inhalation. Almost immediately there was an improvement in the action of the heart, and the lungs began to draw in air by the the natural method, and steady improvement set in, and he was entirely well by two days. No definite dose of the drug was given. As much as half a drachm was poured on a handkerchief, and held at the nostrils at different times during the progress of the case.

TREATMENT OF BLEPHAROSPASMUS.

According to the Paris correspondent of the *British Medical Journal*, June 2, 1888, at a meeting of the Société de Médecine de Paris on March 24, M. A. Dehenne read a note upon the treatment of tonic blepharospasmus by section of the supra-orbital nerve. Tonic blepharospasmus, the only form of this affection which is really dangerous, is not common. The contractions, which are often painful, are incessant, and last from several seconds to several minutes. The patients are unable to walk out of doors unaccompanied, and can follow no occupation which requires the use of the eyesight. When the affection is of old standing, the attacks, which occur from twenty to forty times daily, are accompanied by the following phenomena: the space between the eyelids is contracted, the eyebrow falls down over the upper eyelid, there are incessant clonic spasms in the lids. Neurotomy is the only treatment which has proved effectual in checking the contractions. In most cases section of one supra-orbital nerve suffices. The operation is performed as follows: The course of the supra-orbital nerve is marked with ink as far as the junction of the inner and middle thirds of the eyebrow. The skin is pinched up between the thumb and finger;

a vertical fold is thus formed, at the bottom of which a small bistoury is introduced, about one centimetre above the eyebrow, with the blade parallel to the surface of the skin. The bistoury is then withdrawn, and the neurotome, which is merely a blunt-pointed bistoury, with a slightly convex blade, is introduced in the same way. On reaching the vasculo-nervous bundle, the instrument is turned round and rested against the frontal bone. A series of cuts are then made until the periosteum is reached. The neurotome is then placed in its former position, and is rapidly withdrawn. Strong pressure is made by means of a coin wrapped in cotton-wool in order to prevent any subcutaneous effusion of blood. A compress bandage is applied. Tonic contractions entirely cease immediately after the operation, but clonic contractions sometimes persist for a few days longer. The first patient operated on by M. Dehenne in 1879 was a woman of 52, who had suffered from the affection for three years. Both supra-orbital nerves were divided, and immediate recovery ensued. Six months later the spasms reappeared. Electric stimulation, with continuous currents, which had been ineffectually applied before the operation, were completely successful after it. M. Dehenne cited a recent example of the admirable results of neurotomy in tonic blepharospasmus. The patient, a woman of 58, had suffered from double blepharospasmus for five years. The tonic contractions had begun three years after the appearance of clonic blepharospasmus. M. Dehenne divided the left supra-orbital nerve, in which the tonic form of the affection was most pronounced, on February 25, 1888. The tonic contractions immediately ceased, and the patient was able to open her eyes. Since the operation all spasms in the eyelids have disappeared. M. Dehenne has performed neurotomy in other cases with similar success.

CREOLIN.

Mr. John M. Maisch contributes the following facts as to the general properties of creolin, mention of which has as an active antiseptic already been made a number of times (*Amer. Journal of Pharm.*, June, 1888). Creolin is a product of the dry distillation of coal, and forms a blackish-brown, almost syrupy and viscid, liquid, having a tar-like odor, and, when dropped in water, forming delicate white clouds, a single drop rendering from two hundred and fifty to three hundred cubic centimetres of water uniformly milky and opaque. It has been employed by Dr. J. Neudoerfer (*Pharm. Post*, 1888, p. 24) as an antiseptic for wounds and in several cases of erysipelas, and was usually applied by means of gauze, previously freed from fat, in the form of solution of two drops to two hundred cubic centimetres of water.

An examination of creolin by A. Gawalowski (ibid., p. 229) elicited the following: It is a thickish, clear fluid of a dark pomegranate-red to chestnut-brown color; has a vinous, aromatic taste, with a pungent, soapy, and burning after-taste, and a tarry odor; reaction neutral; specific gravity at 17.5° C. 1.066; soluble in all proportions of absolute alcohol, also in ninety-five per cent. alcohol, chloroform, and in ether and acetic ether; soluble clear in 1.7 parts of seventy per cent. alcohol, with more becoming turbid; partly soluble in petroleum benzine, leaving a tarry, black-brown residue; insoluble in wood spirit, becoming flocculent, then oily; with carbon disulphide, forms a light brown emulsion, and separates a tarry layer, becoming whitish yellow and oily; with water, forms a milky, greenish-yellow liquid; with acidulated water, yields a brownish emulsion, separating a supernatant, fatty layer; with alkaline water, gives a dingy yellow, permanent emulsion; and with glycerin, likewise an emulsion, separating an oily layer.

Subjected to heat, creolin yielded a distillate at 100° C. amounting to forty-five per cent.; between 100° and 147° C., 26.33 per cent., and left a tarry residue 22.90 per cent. and ash 5.77 per cent. The saponifiable acids and resins amount to .30 per cent.; resin readily soluble in alcohol (possibly guaiac), .78 per cent.; tar bases, .48 per cent.; tar compounds, combining with alkali, 61.88 per cent. The ash contains sodium, with traces of potassium. The portion soluble in benzine was 72.8 per cent., and had an aromatic, naphthalin-like odor. Naphthalin, fluorescein, anilin, toluidin, phenol, and picric acid were determined qualitatively. According to this analysis, creolin consists mainly of coal-tar, with the addition of some resin soap, fat soap, and caustic soda.

For the internal administration of creolin the form of mixture does not appear to be adapted; for on diffusing one drop of it in about six drachms of water, and adding five drops of this emulsion to fifteen drachms of syrup of marshmallow, the syrupy mixture still had a very persistent tarry and soapy taste.

HIGH ALTITUDES IN PHTHISIS.

The recent discussion at the Royal Medical and Chirurgical Society upon the influence of residence at high altitudes on phthisis brought into strong relief both the high value attached to this line of treatment by some eminent authorities and the utter scepticism with which it is regarded by others. Dr. Theodore Williams, Dr. Hermann Weber, and Dr. Ewart spoke in strong support of the mountain-cure; while Dr. Pollock and Dr. Quain did not hesitate to declare that the cases which do well at Davos and other high altitude sanatoria are precisely the cases which do well in England, and that the element of altitude is practically without influence upon the result.

The discussion arose out of a communication from Dr. Williams, in which he detailed the results of treatment in one hundred and forty-one cases of phthisical patients who had resided at high altitudes. The results were certainly surprising and gratifying. In 41.13 per cent. of cases the restoration to health was complete, in 29.78 per cent. there was great improvement, 11.34 per cent. were more or less improved, while only 17.02 deteriorated, including 13.47 per cent. of deaths. Among cases in the first stage there was improvement in ninety-one per cent., arrest of the disease in sixty-three per cent., with deterioration in only 7.5 per cent. In the second and third stage cases there was improvement in forty-six per cent., arrest in ten per cent. (?), and deterioration in forty-six per cent. Single-cavity cases gave, as might have been expected, better results than cavity cases with the opposite lung involved; and left cavities showed less tendency to change, for better or worse, than those in the right lung. Among the general conclusions arrived at by Dr. Williams are the following: That to benefit by residence at high altitudes there must be freedom from pyrexia and sufficient lung surface to carry on the process of respiration adequately in a rarefied atmosphere; that enlargement of the chest, hypertrophy of the healthy lung-tissue, and development of pulmonary emphysema around the tubercular deposits usually ensued upon residence in the mountains; that hemorrhagic cases do well in these regions, hæmoptysis being rare; that a residence of from six months to two years is requisite to secure the maximum of benefit. Apart from phthisis proper, Dr. Williams has found the high altitudes useful in cases of imperfect thoracic and pulmonary development, in chronic pneumonia without bronchiectasis, in chronic pleurisy, in pure spasmodic asthma, and in anæmia. He deprecates their employment in cases of phthisis with more than one cavity, in cases where the breathing surface is much reduced, in catarrhal phthisis, in erethitic phthisis, in emphysema, in chronic bronchitis, in diseases of heart, brain, and spinal cord, and in advanced age.

Dr. Weber's figures were analogous to those of Dr. Williams, but his advocacy of high altitudes was qualified by the important remark that he did not attach much value to elevation, except in so far as it made open-air exercise easy. He believed that the results obtained at Falkenstein, in the Taunus Mountains (elevation under two thousand feet), were as good as, or better than, those reported from the high Alps.

There are two aspects of this important therapeutic problem upon which clear and authoritative teaching is much to be desired: First, Are there any cases which do well exclusively at high altitudes, and in which other methods of climatic treatment would be unavailing? And, secondly, If there be such cases, what is the essential element in the cure? Is it elevation with the proportional atmospheric rarefaction, or is it some other factor in the climates at high levels? Now, whatever be doubtful, it can hardly be denied that rarefied air promotes respiratory activity, and that the proportion of cases in which decided expansion of the thorax takes place is greater at the mountain sanatoria than at those of less elevation. It seems a fair deduction from this unquestionable fact that cases of phthisis, with much flattening and constriction of the chest, suggest themselves as one class in which high altitudes may fulfil a definite therapeutic indication. Again, if we can trust statistics, cases of limited and stationary lesion in the first stage would seem to have a better prospect of speedy and complete recovery at high altitudes than elsewhere. Such cases, no doubt, sometimes completely recover without change of climate, but this happy result is surely somewhat exceptional this country, whereas it seems a comparatively common occurrence at Davos, Colorado, and the Andes. Finally, we think there is very strong evidence of the peculiar value of high altitudes in cases where phthisis has supervened upon chronic pleurisy or pneumonia.

Facts such as those educed above are independent of theoretical explanation, but we

cannot help speculating upon the secret of the beneficial influence of high altitudes. The favorite theory has been that the rarefaction of the air stimulates respiratory activity, and that in this circumstance we have a valid explanation of all the facts. Dr. Creighton, following some experiments of Paul Bert, leans to the view that high altitudes give a stimulus to the greater production of hæmoglobin, and hence not only promote the formation of healthy blood, but help to develop the vascularity of the pulmonary tissue. Other authorities, rejecting any special theory, hold that the chief, if not the only, advantage to be found in residence in the mountains is the high average of fine, dry, sunny weather, admitting of ample fresh-air exercise, and promoting appetite, digestion, and hopefulness. We note that at the recent discussion no emphasis was placed upon the theory, so popular a few years ago, that the "aseptic air" of high elevations was the true secret of their beneficial influence. This reticence is significant taken in connection with the obviously waning faith in the utility of antiseptics in phthisis which at present prevails. It seems as if we could not safely go farther than the assertion that pure air is essential in battling with the disease, but that the value of all special medicaments administered with a view to the destruction of the bacilli must still be regarded as a *lis sub judice.*

The recent discussion will have served a useful purpose if it succeeds in impressing upon the minds of the profession that the choice of cases for the mountain sanatoria must be most anxiously regulated, and that this method of treatment is no specific to be recklessly or indiscriminately applied. We would deprecate, on the other hand, the hasty rejection of the great mass of evidence which constantly reaches us from the Alps, the Rocky Mountains, and the Andes, to show that the mountain treatment is a *bona fide* addition to the resources of therapeutics. —*Lancet*, May 26, 1888.

THE CASE OF SEXTUPLE PREGNANCY.

It may be remembered that an extraordinary case of multiple pregnancy recently occurred at Castagnola, near Lugano, in Switzerland. A woman, aged 36, wife of the local *sindaco*, was delivered on May 4 of six children—four boys and two girls—at a birth. They were born alive, though prematurely, but they all died in a few seconds. Their united weight was only three pounds thirteen ounces, and the length of their bodies, which were perfectly well formed, varied from eight and three-quarters to ten and a quarter inches. The case, which is said to beat all previous *authentic* records of human fecundity, is vouched for by Dr. Francesco Vassalli, of Lugano, who attended professionally on the occasion, assisted by Drs. Bianchi, Reali, and Solari, of the same place. Dr. Vassalli has reported the case in detail in the *Gazetta Medica Italiana-Lombardia* of June 2, and an abstract of his account may be interesting. It has been stated that the woman had previously borne seven children in two batches of four and three respectively, but this is inaccurate. She was married only two years ago to a widower, aged 41, who had ten children by his first wife. There were no twins among these, but it appears that he has five cousins,—brothers,—each of whom is the father of twins. A sister of the patient has also borne twins on one occasion. The patient herself, in the first year of her marriage, had a boy, who is now fifteen months old and in perfect health; she suckled him for eleven months, when she became aware that she was again pregnant. The catamenia had reappeared in the seventh month of her nursing, and the last period began on December 4, and lasted six or seven days; conception must, therefore, have taken place in the early part of January. The patient suffered severely almost from the first from weakness of the legs and vomiting, and in the fourth month the abdomen was as large as it usually is at full term. On the morning of May 4 (being about the one hundred and fifteenth day of pregnancy), while doing some light out-door work, she felt a sudden desire to empty her bowels, and, on squatting down for the purpose, there was a gush of hot liquid from the vagina, which she recognized as amniotic fluid. She immediately went home, walking with much difficulty, on account of something which she felt protruding from the vulva. A neighbor was called in, who found a tiny fœtus hanging by the foot, which was speedily delivered. All this occurred within a few minutes. Dr. Vassalli was then summoned, and found the os only partially dilated, while an unruptured sac could be felt through it. There being no urgent symptoms, the patient was kept quiet, and, after passing a fairly good night, she got up the next morning to attend to her household duties, feeling quite well. Towards mid-day pains came on with increasing violence, and

she lost a good deal of blood. Seeing that abortion was inevitable, Dr. Vassalli thought it advisable to hasten delivery. He therefore punctured the membranes, and extracted a small fœtus by the foot. After tying the cord, he followed up the placental end with his right hand, till he came to another sac of fluid; this he also punctured, and delivered a third fœtus. Two more were extracted in the same way, the whole procedure occupying two hours. Fresh hemorrhage now occurred, and the uterus did not contract. Dr. Vassalli, therefore, tied all the cords together, and made gentle traction, at the same time applying pressure to the womb. This failing, he introduced his hand into the uterus, and tried to bring away the placenta, which, however, he only succeeded in tearing, with the result of making the bleeding more alarming. Having no hæmostatics at hand, he sent for assistance, keeping his hand in the uterus meanwhile as a plug. It was four hours before help arrived; the after-birth was then got away with some difficulty, a sixth fœtus enveloped in its own membranes being found attached to it. The patient bore the trying ordeal very well, and made a good recovery. The heads of the fœtuses were rather large relatively to the bodies, and the eyes were covered with the pupillary membrane. The genital organs were completely differentiated. There was only one placenta. The specimen has been placed in the museum of the R. Scuola Ostetrica, at Milan. Dr. Vassalli calls attention to the curious fact that Castagnola is rather remarkable for multiple births. From the official registers it appears that in a population of five hundred and eighty-five, from January 1, 1876, to May 10, 1888,—that is, thirteen years and four months,—there was a total of two hundred and forty-seven births. Of these, two hundred and twenty-eight were single and nineteen multiple, the latter consisting of five cases of twins, one of triplets, and the present one of *sextuplets*. The proportion of twin births, therefore, was one in forty-five, instead of Schröder's estimate of one in eighty-nine; and of triplets one in two hundred and twenty-eight, instead of one in seven thousand nine hundred and ten.—*Brit. Med. Journ.*, June 9, 1888.

GINSENG.

A recent book upon "Life in Corea" directs attention to the commercial and possibly medicinal value of ginseng. Of the commercial value of this drug there can be no doubt, the quantity exported to China being very large, the revenue benefiting to the extent of five hundred thousand dollars annually. The plant indicated is the Panax ginseng or schinseng, not the *Panax quinquefolium*, or American ginseng, the root of which is one of the chief adulterations of senega. The former is cultivated in Corea under royal license, and is in very high repute among the Chinese as a restorative. According to another authority, it is chiefly prized as a stimulant and aphrodisiac. The author of the book on Corea assumes that centuries of experience must be held to justify belief in the remedial properties of this drug. Further investigation may show that it has other and more valuable actions, even though the present tendency of medicine is to control the use of stimulants as rigidly as possible, and to avoid active interference in the other direction. The high price of the drug is likely to prevent its employment in this country.—*Lancet*, May 19, 1888.

EXPERIMENTAL RESEARCHES ON TUBERCULOSIS.

Dr. Cornet publishes in the *Internationale Klinische Rundschau* an account of a series of experimental investigations on tuberculosis which he has been conducting for the last two years in the Berlin Hygienic Institute. The experiments were divided into three groups: the first of these dealing with the air and dust in dwelling-houses, hospitals, etc.; the second group comprising observations directed to the parts of the body affected by tubercle artificially introduced in different situations; and the third group consisting of attempts to solve the problem of the possibility of rendering the tissues unsuitable as a cultivating medium for the tubercle-bacilli. In order to examine the walls and floors of rooms, the surfaces were washed over with sterilized sponges, which were then used to inoculate broth, the resulting culture being injected into the abdominal walls of three guinea-pigs. The animals (if they did not die of some intercurrent affection) were killed forty days later, and a careful necropsy made. Twenty-one hospital wards, in which most of the patients were phthisical, were examined in this way, the result being that from the dust of fifteen of them tuberculosis was

set up. Similar observations made in lunatic asylums showed that the walls of these establishments are very frequently infected with tubercle. Private houses where persons affected with phthisis had lived gave likewise very distinct positive results; out-patient departments and surgical wards appeared, on the other hand, to harbor no tubercle. One important observation made was that where phthisical people had been in the habit of expectorating on the floor, this was certain to yield infectious cultures, whereas in cases where handkerchiefs or spittoons had always been used the liability of the dust to prove infectious was very greatly diminished. Regarding the organs affected, Dr. Cornet fully confirms Koch's observation that, except the actual point of introduction, the organs most affected are the nearest lymphatic glands; thus, when inhalation is the mode of infection adopted, the bronchial glands are the organs most affected; when injections are made into the abdominal walls, the inguinal glands of the side selected show the greatest degree of tuberculous infection; and when the virus is introduced directly into the abdominal cavity, the omentum is the part most affected. The therapeutical observations were made with tannin, "pinguin," sulphuretted hydrogen water, menthol, corrosive sublimate, creolin, and creasote, all of which were given in much larger doses in relation to the body weight than any one would think of prescribing for human beings. In the case of corrosive sublimate, toxic symptoms were induced before the tubercle was injected, and care was taken with all the other remedies that the system was well saturated with them. Notwithstanding all this, however, every animal died, not the slightest hinderance being apparently caused to the development of the tubercle-bacilli by any of the remedies. Dr. Cornet remarks that of course the results of experiments on guinea-pigs must not be taken as necessarily holding good for human subjects, as he has himself repeatedly proved the great value of creasote in the treatment of phthisis. Again, some infected guinea-pigs were sent to Davos, others being kept in Berlin, the conditions of life of the two sets of animals being rendered as similar as possible. All of them died in about the same time, and no perceptible difference was found in the degree of tuberculous infection of the tissues in the two classes of cases. Dr. Cornet promises to publish the details of all his observations in the *Zeitschrift für Hygiene*.—*Lancet*, May 19, 1888.

TREATMENT OF TONSILLITIS BY COCAINE.

At a meeting of the Clinical Society of London, held May 11, 1888, DR. DE HAVILLAND HALL read notes of three cases of "Acute Parenchymatous Tonsillitis or Quinsy treated by Cocaine" (*Lancet*, May 19, 1888). Case I., a laborer, aged 28, was admitted into the Westminster Hospital on September 28, 1887, suffering from quinsy. He had had two similar attacks in the last five years. On admission he had been ill four days. The right tonsil and adjacent soft parts were enormously swollen, and he was unable to swallow without the greatest difficulty and pain. On the 30th there was complete inability to swallow, but after painting a twenty per cent. solution of cocaine freely over the whole of the fauces the patient was able to swallow some bread and milk. The same night the left tonsil became affected, and the cocaine solution was applied again next day with an equally good effect, and the day following he was able to swallow bread and butter. No suppuration occurred. The patient left the hospital quite well, after having been in one week, instead of four and three weeks respectively, as on the two former occasions. Case II., a publican, aged 25, seen in consultation with Mr. Wright at Kennington on October 26, 1887. When seen the patient's complexion was dusky; he was suffering from some dyspnœa and great dysphagia. Both tonsils and the soft palate were greatly swollen, and were covered with a viscid secretion, but there was no false membrane. Pulse 120, feeble. Urine: sp. gr. 1030; loaded with albumen. The patient's condition was a most anxious one. The throat was swabbed out with a twenty per cent. solution of cocaine, and the application was repeated in ten minutes. Five minutes later the patient was breathing easier, and was able to swallow half a pint of a mixture of egg, milk, and brandy. During the next two days applications of cocaine were made night and morning, and one on the third day. The patient gradually improved, no suppuration occurred, and a week later the urine was free from albumen and he was well. Case III., a porter, aged 39, attended at the Throat Department of the Westminster Hospital on November 16, 1887, complaining of sore throat and inability to swallow for thirty-six hours. He was previously quite well. The left tonsil and adjacent parts were swollen, and there was a yellow patch on the tonsil. Pulse 88, fair volume. Temperature, 102.2°. Urine

contained a trace of albumen. A twenty per cent. solution of cocaine was applied, and the patient was soon able to swallow half a pint of bread and milk. Four days later the patient had no difficulty in swallowing, and was practically well. In all three cases, as soon as the patients could swallow easily, tincture of the perchloride of iron, with or without quinine, was ordered. Dr. de Haviland Hall pointed out that cocaine has a twofold action in these cases: it diminishes the sensibility of the parts to which it is applied, and at the same time lessens the blood-supply; hence deglutition is much facilitated. He also thought that it checked suppuration. He advises the throat to be sprayed out with a solution of bicarbonate of sodium, ten grains to the ounce, before the cocaine is applied. By this means less cocaine is needed, and it appears that cocaine acts more efficaciously in the presence of an alkali.

Mr. Stoker said he rose to emphasize Dr. Hall's remarks. He suggested, however, that a good way to prevent recurrence of the inflammation would be to remove the tonsils. While cocaine certainly merited all the praise bestowed upon it in these cases, he mentioned that some care was necessary, as he had seen patients almost expiring from the effects of cocaine used for this purpose.

Dr. Alex. Morison suggested that the syncopal attacks to which allusion had been made might in some cases be due to mere manipulation of the inflamed tonsils. He quoted a case in which merely touching the inflamed tonsils had brought on an attack of syncope, which narrowly escaped proving fatal.

Dr. Semon quoted several cases to show that cocaine was not a drug to be used indiscriminately.

Dr. Hall, in reply, mentioned that last week he had used a twenty per cent. solution of cocaine to a young and strong man, who was very strongly affected by it, and had to lie down for nearly an hour before the effects passed off. He always applied the solution now with a brush, all the cases in which untoward symptoms had showed themselves having occurred when he used the spray. He observed that peritonsillar inflammation seemed to take place in some cases when practically no tonsillar issue was left. His remarks only applied to parenchymatous tonsillitis, and the same good results had not followed the use of cocaine in the follicular form.

VALUE OF ANTISEPTIC PRECAUTIONS IN INTERNAL URETHROTOMY.

At a meeting of the Harveian Society of London, held May 17, 1888, Mr. Bruce Clarke (*Brit. Med. Journ.*, June 2, 1888) drew attention to the fact that though this operation had been advocated for many years in certain cases of stricture, which did not yield readily to dilatation, yet it had never been generally accepted by surgeons. This was due partly to the fact that its results were not supposed to be good, and partly to the dangers of the operation itself. As to its results, it was often urged that the worst strictures were always those in which urethrotomy had been performed. Of course, this was perfectly true, but it would be fairer to state that it was only the worst strictures that were submitted to urethrotomy. If strictures were neglected after the operation they of course recurred, and this gave a certain currency to the idea that it was the internal urethrotomy that had made them relapse. The dangers of the operation itself were, he maintained, dependent on septic fever; and it depended either on self-infection from a septic urethra or on dirty instruments. The latter source of infection could be easily guarded against by the thorough cleansing of instruments and catheters, while the purification of the urethra was no easy matter. To effect this, however, as far as possible, the urethra should be irrigated with sublimate 1 in 2000 for several days beforehand, and when the stricture had been divided, the bladder should be washed out with a similar solution, and then with hot water at a temperature of 105° F. After this a catheter should be tied in for twenty-four hours. By this means the urine came very little into contact with the urethra, and septic infection was avoided. Fifteen cases were related in which the plan had been tried by the author, and he alluded to some others in which he had suggested the plan to other surgeons. The results were very successful.

Mr. Swinford Edwards said that in the last six internal urethrotomies which he had performed he had not only carried out the suggestions laid down by Mr. Bruce Clarke in his paper, but had administered boracic acid in 10-grain doses three times a day for two days before the operation, and for a few days subsequently, with a view of sterilizing the urine, as suggested by Dr. Palmer in the *American Medical Practitioner and News*, August, 1887. In none of these cases did urinary fever supervene; but brilliant as was

internal urethrotomy, he believed that the time was soon coming when it would be almost, if not entirely, supplanted by electrolysis for strictures in the deep or fixed urethra, which were unfitted for the simple treatment of dilatation.

The PRESIDENT spoke in favor of corrosive sublimate as an antiseptic; but he regarded the prolonged suppression of urine and the other severe symptoms which had followed the operation in the case referred to early in the paper as more due to shock than to blood-poisoning.

MR. BUCKSTON BROWNE was interested in finding that an advocate of electrolysis in the treatment of urethral stricture still practised the operation of internal urethrotomy. He should like to know why electrolysis was not employed in the cases just detailed. He had practised internal urethrotomy now for fifteen years, and had never lost a case; he therefore knew nothing of septicæmia as following the operation. He took great care to insure the utmost cleanliness of all instruments employed. He entirely dissented from Mr. Clarke's view that urethral fever was of septic origin, and maintained that the most perfect antisepticism would never do away with urinary fever in certain cases, after urethral operations, because the fever was caused by urethral shock or irritation acting reflexly through the nervous system upon the excretory renal apparatus.

BLOODLETTING IN PNEUMONIA.

In a paper recently read before the College of Physicians of Philadelphia, DR. HENRY HARTSHORNE contrasts the mortality from pneumonia in the present day with that formerly prevailing, and advocates a return to bloodletting in the treatment of this disease. His arguments have been criticised as follows in the editorial columns of the *Lancet* for May 19, 1888:

"His object may be best gleaned by quoting his own words. He says, 'My thesis is this: That the mortality of acute pneumonia, croupous and catarrhal, is decidedly greater now than forty years ago, especially when it occurs in young or middle-aged patients of previously good health; and that this increase of mortality coincides with a prevailing change of treatment, in such a manner as strongly to suggest, if it does not absolutely prove, that the principle of that change is erroneous, either in what it omits or in what it adds, or in both.' In brief, his essay amounts to an attack on the present mode of treating pneumonia, and an advocacy for a return, in part at least, to the disused practice of bloodletting. He commences his argument by summarizing the statements made in an able article which appeared in the *British and Foreign Medico-Chirurgical Review*, July, 1858, when 'the anti-venesection movement was at its height,' the reasons for the abandonment of the lancet being 'change of type' according to Dr. Alison, and a 'sounder pathology' according to Dr. Hughes Bennett. It would be impossible to reproduce the statistics quoted by the writer from many sources; we must content ourselves with noting that he estimates therefrom the average mortality of pneumonia in the second quarter of the present century as being from eight to nine per cent., or less than half the present estimated mortality of eighteen per cent. given by the British Collective Investigation Committee; and he asserts confidently that the fatal cases include a larger proportion of individuals in the prime of life, and of previously good health, than was the case half a century ago. Such a conclusion cannot be attributed to improved diagnosis, for, if anything, this argument would tell the other way, by the inclusion of cases of tuberculosis in the list of the prestethoscopic period. As to the 'change of type' theory, while admitting the possibility of a lowered general vitality from overcrowding in large towns, and other causes of modern life, it is a fact that the average duration of life has increased from improved sanitation; and he does well to point out that this theory was promulgated coincidently with the abandonment of lowering measures of treatment. If, then, neither the nature of the disease nor the vitality of its victims can be said to have undergone any change, what is there left but to attribute the alleged heightening of mortality to altered lines of treatment? It is the substitution of bloodletting and purging—*i.e.*, of depleting measures—by restorative and stimulant methods, or the less active 'expectancy,' and reliance upon antipyretics, that constitutes the radical change to which Dr. Hartshorne refers. He advocates, therefore, a return to a discriminate degree of local and general bloodletting, on the ground of its lowering vascular tension, and even on the more ancient ground of elimination. The prescription of saline purgatives, diuretics, and diaphoretics should, he holds, be reintroduced, while opium ought to

be almost entirely banished. Nor does he see that we have gained much by the introduction of antipyretic drugs in place of the old-fashioned febrifuges above indicated. The heart-failure, which forms so prominent a feature in the induction of the fatal issue, depends, he holds, upon the obstructed pulmonary circulation, and indicates a recourse to depletive measures rather than to the 'early and free use of alcohol,' which Dr. Todd advocated in all acute diseases,—a practice stigmatized by Dr. Hartshorne as 'extreme, unjustified, and often injurious.' He does not, however, lay such stress upon the influence of the febrile state in contributing to cardiac asthenia as might have been expected. Nevertheless, we do not consider that Dr. Hartshorne's arguments are to be lightly set aside. The weak point of course lies in the possible unreliability of the data upon which they are based. Statistics, especially of clinical facts, are notoriously misleading, and it must be especially difficult to institute a just comparison in records which date from what may, without presumption, be styled the 'pre-scientific' era. It would be difficult in the present day to bring about such a reversion to old practice as Dr. Hartshorne desires without a corresponding change in ideas concerning the nature of pneumonia, and the dangers that have to be averted by treatment."

TWO CASES OF RUPTURE OF INTESTINES WITHOUT EXTERNAL WOUND.

At the meeting of the Clinical Society of London, held May 26, 1888, MR. HERBERT W. PAGE read a paper reporting two cases in which the intestine was ruptured without external wound (*Medical Press*, May 30, 1888).

The interest attaching to the paper by Mr. Mayo Robson and the discussion upon it on February 10, has led the author to contribute two cases in which laparotomy was fully considered, and because one of them exemplifies a point to which no reference was made on that evening. Case I. was that of a man, æt. 50, over whose right iliac region a cab had passed on the morning of April 5, and who was admitted into St. Mary's Hospital the following day in great pain, and with very marked collapse. Rupture of intestine was diagnosed, but the amount of collapse seemed entirely to forbid laparotomy. There was no improvement during the day, and he died the next morning, forty-four hours after the accident. A rupture of small bowel was found four and a half feet above the ileo-cæcal valve, and in addition to some smaller contusions in the cæcum and neighboring ileum and much mesenteric extravasation, there was a knuckle of deeply-congested gut an inch and a half in length. It is thought that even if laparotomy could have been done soon after the accident, when diagnosis probably could not have been at all sure, and the ruptured portion had been satisfactorily dealt with, this other piece of bruised intestine could hardly have been left alone. The danger of leaving it—viz., of secondary perforation from sloughing—is by no means imaginary, as is shown by the history of the second case, that of a lad, æt. 18, who was butted in the belly—left iliac region—while at play with some other boys. He instantly had intensest pain, and when admitted to St. Mary's, sixteen hours afterwards, on July 27, gave a history of incessant vomiting since the accident. There were external signs of severe contusion, and marked evidences of local peritonitis to which his symptoms were regarded as due, but there was nothing specially suggestive of perforation, or of the need for opening the abdomen. Opium was accordingly given, and during the next three days there was undoubted improvement. On the night of the 30th, however, there was sudden and alarming collapse. He rallied from this, and for three days seemed doing well again, but on August 3 collapse returned. From this there was no decided rally, and he died on the 6th. Necropsy revealed extensive hypogastric peritonitis and offensive pus in the left iliac fossa, where the blow had been sustained. A perforation was found in the small intestine in the centre of a deeply congested sodden portion. This opening had thickened edges and was surrounded with lymph. It is believed that this perforation occurred only on the fifth day after the accident, as the result of the sloughing of a portion of severely contused gut, and the author points out that had laparotomy been done when the lad first came to the hospital, no more difficult question could well have presented itself than that of determining whether this contused piece ought or ought not to have been resected. In neither of the cases is it thought that the chances of successful laparotomy were anything but the very poorest, but yet, as laparotomy alone gives a hope of life, it is, perhaps, right to operate, even though gravity of symptoms and uncertainty in diagnosis seem to forbid it. It must be

rare to meet with cases of abdominal injuries where there is no complication of any kind, or in which a simple rupture in one place is the only lesion, and these are considerations to be borne in mind when laparotomy is undertaken or entertained.

MR. CROFT read the notes of a similar case in a man, æt. 34, admitted on March 16, 1887, having been injured in a row seventeen hours before. On admission his temperature was 103°. He at once cut down and found three different lesions, a ruptured ileum, a lacerated mesentery, and a perforated omentum. An artificial anus was made, but it was found necessary to close this. On the second operation, on April 4, the laceration was sutured, the operation taking two and a quarter hours, and the man being very prostrate. The man died seventy-three hours after the operation from sheer exhaustion. He considered the case to be a crucial one in the history of intestinal surgery, as showing that resection of the bowel might be safely undertaken even when peritonitis had been set up. He strongly advocated early exploratory laparotomy with resection if necessary. In cases of doubt an exploratory incision should always be made.

CASE OF RAPIDLY FATAL CHOREA.

DR. COOK and DR. CLIFFORD BEALE report in the *Brit. Med. Journ.* for April 14, 1888, the following case:

A. C., aged 9, was brought as an outpatient on October 27, 1887, suffering from chorea. The mother stated that on October 25 the child had had some difficulty in putting on her stockings, owing to slight loss of control over her right arm and leg. The mouth and eyes had been noticed to twitch next morning, and since then the irregular movements had become general, though most marked on the right side. The child had not taken food well, had slept badly, and been slightly delirious during the night, occasionally screaming, and complaining of pain in the left hypochondrium. She had been very thirsty. The evacuations had been normal, and never passed unconsciously. She had been a fairly healthy child, and had passed through an attack of scarlet fever two years previously without any known sequelæ. She had not been frightened, nor had she been in company with other choreic children, nor had any worms been seen.

When first brought under observation, on the 27th, the child was obviously very ill, with flushed face, hot skin, and a terrified expression of countenance. The choreic movements were violent, and, according to the mother, were hourly becoming more so. The pulse was very rapid, varying between 160 and 170, but the respirations were only slightly increased. She was at once sent into the ward, where, after careful examination, a short systolic murmur could be made out at the apex, which was in the normal position. Only a few scattered crepitations could be detected in the lungs, the breathing being quite regular. The child kept constantly smacking her lips and frequently protruding the tongue, but there was no difficulty in deglutition.

October 28.—She slept very little and was very restless, being sometimes delirious and occasionally screaming. During the day the movements became so violent as to render restraint necessary to prevent injury. The bowels were freely open; the urine was passed involuntarily, but a little, collected, was found to be free from albumen; the tongue was clean and moist, but the lips dry and cracked; the temperature was slightly raised, but never exceeded 101°. The heart's action continued at the same rate or faster, and the pulse at the wrist became almost imperceptible. On the following day some difficulty was experienced in swallowing, and the girl became very noisy, frequently screaming and uttering inarticulate sounds; the respiration became irregular and jerky, and she died rather suddenly the same evening, the whole course of the illness having run between the morning of the 25th and the evening of October 30.

At the *post-mortem* examination both lungs were found to be much congested at the bases, and the left pleura was adherent. The right side of the heart was slightly dilated and flabby, and contained some fibrinous clot and a little dark fluid blood; on the auricular surface of the tricuspid valve were a few punctiform patches of congestion. The left ventricle was firmly contracted, its muscular tissue very good. On the auricular surface of the mitral valve, between the hinge-line and the free border, were numerous tiny patches of punctiform congestion, especially marked along the hinge-line itself. At the free margin of the valve the attachments of the chordæ tendineæ were much thickened by lymphy vegetations, to a few of which slightly colored fibrinous clots were attached. There was no positive ulceration of the endocardial surface to be detected. The brain and upper part of

the spinal cord were healthy, except for an extreme degree of anæmia at the pons and medulla. The tissue of these parts seemed quite normal on section. Other organs were healthy.

The case was treated with arsenic, morphine, chloral, and bromide of potassium, but in no case did the action of the drugs appear to have any influence upon the downward course of the disease.

THE SALICYLATE OF MERCURY.

The salicylate of mercury is a white, amorphous powder, free from odor, and slightly acid to test-paper. It is slightly soluble in water and alcohol, and contains .02 per cent. of water of crystallization and 59 per cent. of mercury.

Dr. Henry T. Inge reports in the *Atlanta Medical and Surgical Journal* for June, 1888, a number of cases of syphilis treated by this preparation, but it does not appear to be as favorable in its actions in general as the bichloride.

The dose given internally may range from $\frac{1}{10}$ grain up to 4 or 5 grains a day. The advantages of the salicylate over the bichloride may be summed up, according to the author, as follows:

1. It is supported easily by the stomach without bad effects.
2. It has decided curative effects on mucous patches and syphiloderms when used externally.
3. It does not produce mercurial ptyalism.
4. It is of great advantage in the treatment of a parasitic disease.
5. It is effective when the bichloride has no effect.

MIGRAINOUS HEADACHE.

At a recent meeting of the Royal Academy of Medicine in Ireland, the President, Dr. James Little read a paper on the value of a combination of salicylate of sodium and effervescing citrate of caffeine in migrainous headache (*Brit. Med. Journ.*, June 9, 1888). He said he was in the habit of directing the patient, when he awoke with any feeling of headache, to take 20 grains of the salicylate in a wineglassful of water, made effervescent by the addition of a dessertspoonful of the granular citrate of caffeine, and, if necessary, to take a second, or even a third, dose at intervals of two hours. The effervescing caffeine made the dose a very palatable one, which the salicylate alone was not, and probably rendered it more useful; but that the good effect was not due to the caffeine was proved by the fact that the author had seen it relieve persons who had previously used the caffeine alone without benefit. It did not appear to lose its effect, as a patient, to whom Dr. Little gave it more than two years ago, said she found it as valuable as when she first began its use.

ANTIPYRIN OR ANALGESIN.

The French Academy of Medicine have recommended the name analgesin instead of the patented name antipyrin, in order to destroy the German monopoly of the manufacture of this valuable substance and to place it on the same footing as other remedies. The name analgesin seems more appropriate, if we must have a descriptive name for our new remedies, than the term antipyrin, under which it has hitherto been known.

A FORMULA FOR CATARRH OF THE THROAT.

Dr. Endler, in the *Deutsche Med. Wochensch.*, February 22, 1888, highly recommends the following gargle in cases of catarrh of the pharynx or larynx. It is by no means unpleasant to the patient, and its use accompanied by very satisfactory results:

℞ Sulph. zinc., 75 gr.;
Aqu. menth. piper., 2 pints.
S.—Use as gargle three or four times daily.

CONCENTRATED SOLUTION OF BORIC ACID.

According to the Paris correspondent of the *British Medical Journal*, June 2, 1888, M. A. Cabanès, in the *J. de Méd. de Paris*, April 15, has discovered a new way of dissolving a large quantity of boric acid in distilled water. It is known that it has not hitherto been possible to dissolve more than 4 or 4.50 parts of this antiseptic in 100 parts of water, which is not strong enough completely to destroy all micrococci. The new solution is as follows: boric acid, 120 parts; calcined magnesia, 10 parts; aquæ destill., 750 parts. It is possible that biborate of magnesium is formed; at any rate, there remains in solution a considerable excess of boric acid.

NAPHTHOL β AS AN ANTISEPTIC.

In a communication recently made by Professor Bouchard to the Académie des Sciences, he states that naphthol β is an excellent antiseptic for external use. But what is more important, it would appear to be the most efficient agent for intestinal antisepsis, particularly on account of its slight solubility, which prevents its absorption, and allows it to remain a long time in the intestine without poisonous effects. A daily variable dose of 1 gramme of naphthol per kilogramme of weight of the animal may be administered without danger.—*Brit. Med. Journ.*, June 2, 1888.

PICHI IN AFFECTIONS OF THE URINARY PASSAGES.

At a recent meeting of the Société de Médecine Pratique, Dr. Le Menant des Chesnais (*Journ. de Médecine de Paris*, No. xvii., 1888) recorded a number of cases of catarrhal cystitis which he had successfully treated with the concentrated extract of pichi, the *Fabiana imbricata*, the urine becoming clear and free from deposits of muco-pus, the ammoniacal odor disappearing, and the pain on urination being relieved.

GUARANA.

A. Kremel (*Pharmaceutische Rundschau*, No. 4, 1888) states that an analysis of guarana show that its therapeutic value depends principally upon the percentage of caffeine contained within it, of which he has found from three to nearly four per cent. present.

THE USE OF CODEINE TO RELIEVE PAIN IN ABDOMINAL DISEASE.

The relief of pain may be classed next to the saving of life, and must perhaps sometimes be even put before it as the chief duty of the physician. As yet no drug has taken the place of opium as a general analgesic, though the use of crude opium is now frequently replaced by the subcutaneous injection of morphine, the most active of the alkaloids it contains. In abdominal pain many practitioners still have a preference for the use of opium, as compared with that of morphine, and this very preference is sufficient to make one ask whether it may not have some foundation in the presence of other active principles along with morphine in opium, and if so, to inquire which active principle it is that helps to allay pain.

Thanks to its recommendation by Dr. Pavy, codeine is largely used in the treatment of cases of diabetes, but at present its use is almost confined to this disease, and it is rarely employed for other purposes, excepting perhaps that of soothing cough or irritation in the throat.

Codeine was discovered by Robiquet in 1832, and two years afterwards its action was tested upon himself by Gregory, who found that, instead of causing sleep, it rather caused excitement, and had also a slight laxative tendency. It was applied therapeutically by Barbier in 1834, who noticed that it seemed to have a special action upon the sympathetic system, and found that it was of great use in lessening pain in persons presenting symptoms of irritation in the solar plexus. Such symptoms are pain in the epigastrium, spreading to the sides and back, and associated with a feeling of burning, anxiety, depression, more or less tenderness of the epigastrium, with sighing, lack of energy, and tendency to faint. Occasionally the pain may cause symptoms of collapse, palpitation, and vomiting. In such cases Barbier gave a grain of codeine in a tablespoonful of syrup, and repeated it if necessary in one or two hours with the best results. From his observations he came to the conclusion that codeine acts chiefly upon the sympathetic nervous system, and especially upon that part of it which is in the region of the stomach; that it is a most useful remedy in abdominal neuroses depending upon disordered condition of the nervous plexus in the abdomen, and especially those in the gastric region; that it does not disorder the digestion, and rather aids than interferes with the action of the bowels. He found also that it produced sleep with tolerable certainty, and that this sleep was never followed by heaviness in the head or stupidity; but, on the contrary, persons who had taken it felt happy, and were disposed to be cheerful on awaking. About twenty years later, in 1856, Robiquet's son undertook some observations on the action of the drug which his father had discovered. The results he obtained, however, did not quite accord with those of Gregory or of Barbier, and it is possible that the discrepancies may have been due to more or less impurity in the drug employed. In large doses he found that it

caused an unrefreshing sleep, followed by a period of confusion of thought; occasionally nausea and vomiting were produced. In small doses he found it of great service in hypochondriasis, relieving nervousness, irritability, and all the discomforts from which patients affected with this disorder are apt to suffer.

Shortly afterwards Berthé made a much more full and complete investigation of the physiological action of the alkaloid. Among other things he confirmed Barbier's observation that it had a specific action upon the sympathetic, and found that it lessened the irritability of the intestine to such an extent that a dog which had received 15 grains of arsenic, along with 7½ grains of codeine, exhibited neither vomiting nor purging, nor any other symptom excepting drowsiness, while another dog, which had received a similar dose of arsenic without the codeine, began to suffer in the course of an hour from severe pain, vomiting, and bloody diarrhœa, and, indeed, presented well-marked symptoms of arsenical poisoning, although it ultimately recovered.

This experiment suggested to Dr. T. Lauder Bruton (*British Medical Journal*, June 9, 1888) that codeine was likely to be of service in abdominal pain, and its trial led to very satisfactory results. The kinds of cases in which he has used it are somewhat different from those in which it had been previously recommended, because while Barbier, Aran, and others have chiefly employed it in gastralgia and painful disorders of the stomach, Dr. Lauder Brunton has used it chiefly in pain affecting the intestines and lower part of the abdomen. The kinds of cases in which he has used it has been very varied. In one case there was high temperature, intense pain of the right iliac fossa, with considerable swelling, so that there could be little doubt but that there was inflammation around the cæcum, although examination, after the acute symptoms had subsided, showed that there was also pelvic cellulitis. In this case 1 grain of codeine, given in the form of a pill, relieved the pain at once, and repetition of the dose, whenever the pain began to return, prevented it becoming at all severe. In another case, a lady, aged 50, had pneumonia of the right base, a greatly dilated heart, with very irregular action, pulse so rapid and weak that it could hardly be counted, and pain over the epigastrium and spreading out from it. She was slightly jaundiced, and a tumor was felt in the right laternal abdominal region, which descended with respiration, but was partly covered by intestine, and could be moved from side to side, so that it seemed to be renal rather than hepatic. As no post-mortem examination was obtained the exact diagnosis could not be established, but the administration of codeine in 1½-grain doses relieved the pain as if by magic.

Dr. Lauder Brunton has tried codeine in cases of long-continued abdominal pain, for which no definite cause could be assigned, as no tumor could be felt, and the functional disturbance did not seem sufficient to warrant a diagnosis of malignant disease. He has tried it in cancer of the liver and pancreas with success in relieving pain, and also in numerous cases where the age of the patient, presence of diarrhœa, tenderness on pressure, and visible peristaltic movements, and thickening of the gut, easily perceptible on palpitation, led to the diagnosis of malignant disease in the intestines, although inability to obtain a post-mortem examination prevented the confirmation of the diagnosis. In such cases he generally begins with ½ grain, in the form of a pill, made up with extract of gentian, three times a day; and if this is insufficient to control the pain, he increases the dose to a grain, and gives it as frequently as seems necessary. As a rule he finds that it does not produce drowsiness, nor has it interfered with the digestive functions.

To sum up, the results he obtained from the administration of codeine have satisfied him that it has a powerful action in alleviating abdominal pain, and it can be pushed to a much greater extent than morphine without causing drowsiness or interfering with the respiration, or with the action of the bowels. It is, therefore, specially indicated where the dilated heart and consolidated lung tended to make one afraid of morphine. Codeine is also specially indicated where one wished to relieve the pain without interfering with the action of the bowels. On the other hand, in some cases of malignant disease of the colon or rectum, the absence of the tendency to lessen peristaltic movements is rather a disadvantage to codeine as compared with morphine or opium.

Dr. Brunton found that in cases of long-continued enteralgia, without organic disease, it has continued to relieve pain for months together, without the dose being increased beyond 1 grain three times a day, and found the same to be the case where the presence of a tumor, in addition to other symptoms, had led to the diagnosis of malignant disease.

INDEX